

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

VOL. LVII.

SATURDAY, DECEMBER 20, 1890.

No. 25.

ORIGINAL LECTURES.

ON THE FORM OF CONVULSIVE TIC ASSOCIATED WITH COPROLALIA, ETC.

Clinical remarks made to the Post-graduate Class in Medicine, Johns Hopkins Hospital, Baltimore, October 17, 1890.

BY WILLIAM OSLER, M.D.,

PROFESSOR OF THE PRINCIPLES AND PRACTICE OF MEDICINE,
JOHNS HOPKINS UNIVERSITY.

GENTLEMEN: There is a curious disease—or perhaps, more correctly, symptom-group—met with chiefly in children, to which attention has been called of late by French writers, which is characterized by irregular, spasmodic movements, the utterance of involuntary explosive sounds or words, and mental defects of various sorts. It is not a very common affection in this country, and I take this opportunity to bring to your notice a case which we have been studying for the past few weeks.

The cases have usually been described as chorea, or "habit-spasm," both of which conditions are simulated very closely by the irregular movements; certain instances also have been reported as hysteria.

Unfortunately Charcot and his pupils, Guinon and Gilles de la Tourette, have given to this affection the name *maladie des tics convulsifs*. I say unfortunately, for here and in England we use the term *convulsive tic* to characterize a totally different affection, involving usually the facial muscles and of either central or peripheral origin, but not necessarily coming on in childhood and not characterized by the other features presented by the disease of which we are at present speaking; and thus it happens that if we turn to the recent editions of French books we find under *tic convulsif* a disease very different from that described by the same name in English and American works.

The history of our patient is briefly as follows:

Mary —, aged thirteen years, applied at the outpatient department, July 10th, and was under observation there until September 16th, when she was admitted to ward G. Her mother brought her to the hospital on account of irregular involuntary movements and curious barking-sounds.

Her family history is good. Her mother is a bright, intelligent woman, a German by birth, and has had ten children, none of whom have been affected as is this girl—the third child. There is no tendency to mental disease in the family. The birth of the child was normal and there is no history of convulsions in infancy. She has had scarlet fever, but has not had rheumatism.

Since her fifth year she has been subject to involuntary jerking movements of the arms and head, which vary very much in intensity, sometimes better, sometimes worse, and they have usually been called by the doctors chorea. They have not interfered with her development or her education. She has not yet menstruated. For the

past year she has been making curious sounds; beginning by saying "hah" very frequently. Sometimes she would bark like a dog. She would also call out the names of people, and if she heard a new name she would be apt to repeat it.

Her condition on admission was as follows: A bright, intelligent child; well educated, writes nicely, takes an interest in her books and has evidently been ambitious at school. She is nervous, the right arm occasionally twitches and the head jerks. There are no grimaces, but on several occasions she seemed to mimic movements of the face. Every now and then she calls out "hah," "Bridget," or "stools," or says in sharp, clear tones "bow, wow." There are no disturbances of sensation, and the special senses are unimpaired. Examination of the heart and lungs was negative; the thyroid gland is slightly enlarged.

Throughout the latter part of July and in August attempts were made to treat the case by hypnotic suggestions, at first with success, but subsequently without any improvement.

On September 8th her mother wrote the following letter, which illustrated a new phase of the child's malady:

"Mary makes use of words lately that make me ashamed to bring her to you or take her out of the house; it is dreadful, such words as —, —, —, etc. She was always a modest child, and it almost kills me for to hear her use such words."

Her mother was asked to bring her again and was told that this was really a part of the affection, and, like the movements, involuntary in character. The child seemed more depressed, had lost flesh and, her mother said, had changed mentally. She was very obstinate, and almost invariably did what she was told not to do, and had threatened to take poison. She will say the bad words aloud or mutter them to herself.

On admission to the hospital she was placed in a room by herself, kept in bed, and encouraged in every way to cease making the sounds and to stop the use of the bad words. During the first two weeks she improved very much. The movements were reduced in frequency and sometimes during my visit they would not be noticed at all. They most commonly affected the right arm, which, with the hand, was drawn up in a sudden electric-like jerk. The head and neck would jerk simultaneously or alone. Sometimes there was combined movement of the neck and chest-muscles. The involuntary expressions of which she made use were those mentioned above; a sharp bark was the most frequent sound, which, from its ringing quality, could be heard at a considerable distance.

She was so much better that she was allowed to get up and another patient was placed in the room with her. This seemed to excite and worry her, and shortly afterward the barking sounds became much more frequent,

occurring every one or two minutes, and she complained of great soreness of the muscles of the chest and abdomen. The movements, however, did not increase. She was again placed in seclusion and in bed, and again improvement followed, but she still barks and she has not given up entirely the use of bad words.

She is a docile, intelligent child, and seems anxious to get well. She has kept a diary, which displays no special peculiarity. She writes verses, which are not worse than those usually composed by girls of her age.

The patient, as you see, is a bright, intelligent child, and there are still to be seen occasional lateral jerking of the head, and now and then the right arm is elevated with great quickness. You have also heard the peculiar sharp sound which she makes from time to time, which sometimes resembles a hiccough. More commonly it has a barking quality, which is not nearly so marked as it was some weeks ago, when usually two of the sounds succeeded each other with rapidity. In addition, this child has presented several of the symptoms which Charcot and his pupils regard as characteristic of the affection.

I have just spoken of the emission of involuntary sounds and words. The use of bad words, for which the ingenious expression *coprolalia* (faecal speech) has been invented, is present in very many of the cases, forming a feature very distressing to the relatives.

You can judge from the letter of this child's mother how grievously troubled she was over our patient's "slips of the tongue." She cried bitterly when she told us of it, and said that she wished her daughter would die. In some of the reported cases, even children of five or six years have persistently used words of the most obscene character.

A second peculiarity of a similar nature is the repetition of any sound or word heard, for which the name *echolalia* is employed by Charcot. It is a veritable echo, and the word is repeated by the patient so soon as heard. In our case this did not often occur, but, on hearing a new name, she would be apt in a short time to repeat it very often; thus, on first coming into the hospital, she used for some time the word "nurse," which she was constantly hearing.

The facial mimicry was noticed on several occasions, but has not been a special feature. This curious imitation of muscular movement has been described, not only in the face muscles, but in those of the extremities, and simulates closely those of the remarkable Malay disease known as *latah*. The term *echokinesia* has been applied to this mimicry of movements.

So far, our patient has not presented any symptom of mental disorder, unless indeed her extreme obstinacy and her addiction to poetry could be so considered. Upon this aspect of the affection Charcot lays great stress, and thinks that sooner or later the cases invariably show psychical changes. By far the most common mental change is the existence of fixed ideas, and Guinon, whose article in the *Dictionnaire Encyclopédique* is the most extensive on the subject, describes these as very often a fear of impending trouble, or a fear of places (*agoraphobia*). In other instances there is "*folie pour-quoi*," in which the patient incessantly demands the reason for the performance of even the simplest actions of life.

"*Folie du doute*" and the curious, irresistible impulse to touch certain objects, may also be present. Another form of this obsession which has been noted in some instances, is what has been termed *arithmomania*, in which the patient is possessed with an irresistible desire to do some special mathematical problem, or to count up to a certain number before doing a certain action.

In brief, the main peculiarities of the disease are: the involuntary movements, the uttering of words or cries, coprolalia, mimicry of words or movements, and, in very many instances, mental symptoms, chiefly some form of obsession. The majority of the cases present only the first two or three of these features, and it is not until the more advanced stages that the mental symptoms become marked.

The prognosis, according to Charcot and his pupils, is extremely grave, and very few cases recover, but years may elapse before the onset of mental symptoms. The diagnosis is easily made in cases such as the one before you; but there are several conditions which in certain features simulate the disease very closely. Thus coprolalia and the irresistible tendency, on all occasions, even the most solemn, to use obscene words have been described apart from any motor phenomena. There is the oft-quoted case of the Marquis of Dampierre, who, from early youth to his ninetieth year, involuntarily uttered, even under circumstances the most solemn, the words "*merde!*" and "*foutu cochon!*"

Still more common is the existence, particularly in children and youth, of a fixed idea. One of the commonest is the "*délirio de toucher*," which impels the individual to touch certain objects, and of which the great Dr. Johnson, as is well known, was a subject. One of the most graphic accounts, probably autobiographical, of this imperative impulse to touch objects is given by George Borrow in his *Lavengro, the Scholar, the Gypsy, and Priest*, in which the practice was followed in order to prevent evil happening to the lad's mother.

In many points the affection has a close resemblance to the common habit-chorea or habit-spasm, with which indeed the involuntary movement of convulsive tic is identical. I do not remember, however, to have seen at the Philadelphia Infirmary for Nervous Diseases, among the numerous cases of habit-spasm which came to our clinics, particularly to the clinic of Dr. S. Weir Mitchell, a single instance in which other symptoms developed.

I had one case with facial spasm, in which the lad put his middle finger into his mouth and bit it severely, and at the same time with the index-finger compressed the tip of his nose. This habit had continued for a long time, and had resulted in the production of a thick callosity on both surfaces of the second phalanx of his finger. A somewhat similar trick is reported to have been practised by Hartley Coleridge when a boy, only, if I recollect aright, he was in the habit of biting his arm. And quite recently there was at the clinic a girl nine years old, who, during convalescence from chorea, developed the curious trick of first smelling and then blowing upon anything she took into her hand.

With hysteria the relations of the disease are not thought to be very close by Charcot and his pupils. The affection usually sets in at a period of life earlier than that at which hysterical symptoms begin, and very many of the cases show no manifestations of hysteria

The utterance of loud involuntary cries and anomalous sounds is, however, a special feature of certain cases of hysteria which may thus present a resemblance to this form of convulsive tic. They, however, are not necessarily associated with involuntary movements, and are usually of a more bizarre character. I remember a remarkable case of the kind which was brought into Professor Wagner's clinic at Leipsic. A child, aged about fourteen years, had for several weeks uttered the most remarkable inspiratory cry, followed by a deep-toned expiration, both of which were audible at a great distance. They persisted during the day with each respiration, but ceased during sleep. The child was worn to a skeleton.

Dr. Gapeu, of Omaha, brought to the hospital last year a phonographic cylinder, on which was recorded a most remarkable hysterical cry which the patient, a young girl, had been in the habit of uttering for many months, and which was loud enough to be heard at a distance of several blocks. These cases, however, usually present other features which make the diagnosis clear.

As was the case in this patient, the affection begins at an early period, in a majority of the cases, according to Guinon, from the sixth to the twelfth year. They are commonly regarded as chorea.

An hereditary neuropathic taint has been present in many instances.

We have treated this child in the hospital by seclusion and rest in bed, and have made moral rather than physical efforts to improve her condition. She is certainly better, particularly in the matter of the use of bad words.

ORIGINAL ARTICLES.

THE TREATMENT OF PNEUMONIA.¹

By J. C. WILSON, M.D.,

PHYSICIAN TO THE HOSPITAL OF THE JEFFERSON MEDICAL COLLEGE,
AND TO THE GERMAN HOSPITAL, PHILADELPHIA.

THE subject of the treatment of pneumonia is trite and well worn, I admit; but its earnest consideration enters into the everyday life of all of us. Those among us whose views as to the proper treatment of this familiar disease are definitely settled are few, and friendly interchange of opinion upon the subject is likely to be useful. What I shall have to say relates solely to croupous pneumonia, and has no special bearing upon so-called catarrhal pneumonia, broncho-pneumonia, or any form of secondary pneumonia whatever.

Croupous pneumonia occurs with great frequency in connection with other diseases. It is not uncommon during convalescence from acute infectious processes. Those who suffer from chronic Bright's disease and from valvular and degenerative diseases of the heart and from organic diseases of the nervous system are especially prone to it. It

not unfrequently occurs as the terminal condition in these affections and in other constitutional diseases, such as diabetes mellitus and pulmonary phthisis. Under these circumstances, it preserves, however, its own clinical and anatomical characters, and must be regarded, not as a mere complication of preëxisting pathological processes, to which it has no essential causal relation, but as an entirely independent intercurrent disease.

When we consider the modifications of pneumonia under these circumstances and in the different periods of life from childhood to old age, and in alcoholic subjects, we are impressed with the uselessness of attempts to show by statistics the value of different plans of treating the disease. No general percentages of mortality can be relied upon as indicating the efficacy of a treatment, unless they are on a large scale and in connection with a critical analysis of the condition of the patients. It is a question of the seed, which is probably always the same, and the soil, which is infinitely modified. The only reliable test of the value of treatment is its effect upon the general course of the disease, a test which is much influenced by the personal equation of the observer. For this reason plans of treatment once in vogue, credited with surprising results in reducing the mortality of the disease, have failed to stand the test of time and have passed into disuse. And while the profession unites in striving after some specific treatment for other infectious diseases, the present drift of opinion in regard to croupous pneumonia seems by common consent to be in the direction of a vigilant expectancy with active treatment of symptoms as they arise.

Whether we regard acute lobar pneumonia as a specific inflammation, or, in the language of the day, as an acute infectious febrile disease, of which the pulmonary lesions are merely a localization, we recognize in its causation three factors—a pathogenic bacterium, a predisposition, and an exciting cause—in other words, the seed, the soil, and the implantation. Nothing in the process is more obvious than its specific nature. Against this neither the existing uncertainty as to the actual bacterium which causes it, nor the fact that the local lesions sometimes terminate in gangrene or in abscess, militates in the slightest degree.

Pneumonia cannot be regarded as a simple inflammation. This being the case, the antiphlogistic treatment of former times scarcely deserves discussion. Indiscriminate bloodletting as a routine treatment for a specific pathological process, the natural history of which shows it to be self-limited and of comparatively short duration, is not in accordance with modern therapeutic principles. Still less are repeated venesections and bleeding *ad deliquium*. Patients recovering after such treatment

¹ Read before the Alumni Association of Jefferson Medical College, November 25, 1890.

do so, not as a result of it, but despite it. In connection with this, one turns with interest to the words of Trousseau: "The necessity, the utility, even, of bleeding does not appear to me to have been made out so clearly as is believed by the majority of physicians, to whom the denial of the efficacy of extracting blood in pneumonia would seem the denial of a demonstration." The investigations of Magendie, Dietl, Niemeyer, and others into the natural history of croupous pneumonia had already called attention to the uselessness and dangers of indiscriminate bleeding. In recent years attempts have been made to show that the disuse of blood-letting in pneumonia has resulted in a notable increase of the death-rate as made manifest by a comparison of recent with older statistics. The unreliability of mortality statistics in pneumonia has already been alluded to. The special error in the statistics of this disease arises from the fact that prior to the middle of the present century the diagnosis of croupous pneumonia was by no means an exact one, and many other pathological processes affecting the chest were very commonly set down as pneumonia. Furthermore, Townsend and Coolidge have shown from a critical analysis of a thousand cases, treated in the Massachusetts General Hospital, from 1822 to 1889, that the increase in the death-rate is misleading for other reasons. The average mortality was twenty-five per cent. This gradually increased from ten per cent. in the first decade to twenty-eight per cent. at the present time. But the average age of the patients has been increasing from the first to the last decade. The relative number of delicate and complicated cases has also been increased, as has the relative number of foreigners. These authors do not regard the treatment, which was heroic before 1850, transitional between 1850 and 1860, and expectant and sustaining since the last date, as having influenced the mortality-rate, the duration of the disease, or its convalescence.

We all recognize the occasional necessity for venesection in the early stages of croupous pneumonia. It often gives relief from urgent dyspnoea and pain, and sometimes even appears to save life. It cannot, however, be considered as a specific treatment. It must be regarded as symptomatic, like wet cups and leeches, which likewise give relief under similar circumstances in a way that is not understood. In the same manner we condemn the treatment by tartar emetic in large doses, and with it is to be relegated to the limbo of discarded medicaments in pneumonia Trousseau's lauded *kermès*. The treatment by large doses of veratrum viride in the early stages, which still survives and finds in many quarters earnest advocates, is based upon the same antiphlogistic idea and has little to commend it. To add the depressing effect of a

powerful drug to the pathological influences already depressing the heart is now recognized as increasing the danger of cardiac failure. In fact, if, as our knowledge of croupous pneumonia indicates, many of the symptoms are due to a toxæmia, it were better to bleed the patient, if he is to be bled at all, into a basin than into his own vessels. To depress the heart by veratrum viride or aconite in the first stage, and to harass it by digitalis at a later period are among the vagaries of a therapeutics which takes pleasure in vaunting itself as rational. To give cardiac depressants in croupous pneumonia is always of doubtful expediency, and digitalis as a cardiac stimulant should be administered only in response to special indications. Of the latter drug Brunton says, "It is of little use in pneumonia."

Efforts to discover a specific, *i. e.*, an antiseptic or germicide treatment for croupous pneumonia have not been followed by success. The most recent attempt in this direction is the suggestion of Bartholow in regard to the use of ethyl iodide by inhalation. The anæsthetic and antispasmodic properties of this drug may render it, when cautiously used, a valuable addition to our resources in the management of pneumonia, but its antiseptic and germicide properties are feeble, and there is no experimental evidence to show that it has, in the high dilution in which it reaches the residual air, any effect upon any of the forms of bacteria present in the pneumonic exudate. Furthermore, there is reason to believe that the pathogenic bacterium has already done its work so far as the lung is concerned when the exudation as manifested by dulness and bronchial respiration is established.

It remains to speak of the treatment of pneumonia by systematic repeated cold or tepid bathing, as practised by Jürgensen at Kiel and Tübingen. Notwithstanding the fact that this treatment, as shown by certain series of statistics, has resulted in an apparent reduction of the mortality amounting to fifty per cent., it has never come into general use, either in Germany or elsewhere. A partial explanation for this undoubtedly lies in the fact that a large proportion of the cases recover under ordinary methods of treatment, and, further, the application of every bath is a disturbance to the patient, which is at least troublesome. Finally, in the absence of conclusive evidence of the efficacy of bathing as a plan, it is impossible to overcome the traditional objections to it on the part of the people.

As yet, we know no remedy of which it can be positively said that it is capable of controlling or aborting the pneumonic process. In affirming this I do not overlook the fact that large doses of quinine given early in the disease are thought by many to exert a favorable influence upon the subsequent course of the attack.

The milder cases run a favorable course and get well without the use of perturbing remedies. The treatment must, therefore, in the present state of knowledge, be expectant. But this expectancy is not idle; it is alert and vigilant, and abundant in resources. It is expectant-symptomatic.

I will speak briefly of the hygiene of the sick-room. The room itself should be large and well lighted, but so arranged that the lighting can be controlled to suit the sensations of the patient. It should be well ventilated, care being taken that the patient is not exposed to draughts. The ideal room for the treatment of pneumonia, or, in fact, almost any of the acute infectious diseases, is like that described in the newspapers as occupied by the Iron Chancellor—large, airy, and well lighted, without furniture, except a military bedstead, a small table, and a chair for the attendant. The patient is not liable to take cold, and requires, above, all an abundance of fresh air. The bed-clothing should be light, but occasionally varied in accordance with the sensations of the patient. The food should be of the simplest and most digestible kind, and during the earlier stages administered sparingly.

A laxative dose of calomel, from three to five grains, at the beginning is useful. It may require repetition later.

The prominent symptoms after the initial chill are the fever, with or without delirium, the pain in the side, the difficulty and distress in breathing, and the cough. The chief danger lies on the side of the circulation, the cause of death in the majority of fatal cases being heart-failure.

The most striking peculiarities of the fever of pneumonia are the suddenness of the rise and its extent; but the importance of the high temperature of pneumonia has been overrated. Welch, in his *Cartwright Lectures*, 1888, carefully analyzes the experimental and clinical data bearing upon this subject. He shows that animals may be kept at a high temperature for at least three weeks without manifesting serious symptoms. The functional disturbances to be attributed directly to the influence of elevated temperature are increased frequency of the respiration and quickened pulse. No definite relation can be established between the variations of arterial tension which occur in fever and the height of the temperature. Though prolonged high temperature is an element in the causation of fatty degeneration of the heart, there are other factors, such as infection, concerned in the production of the lesion. The lessened perspiration, the renal disorders, and the digestive disturbances, with the possible exception of constipation, are always referable chiefly to other causes than the increased temperature. Both experimental and clinical observations strongly support the view now widely accepted that

the disturbances of the sensorium, which constitute so prominent a part in the group of so-called typhoid symptoms, are dependent in a far greater degree upon infection or intoxication than upon the heightened temperature. In support of the conclusions derived from the experimental study of the effect of heat upon men and animals, Dr. Welch called attention to the absence of all serious symptoms in many cases of relapsing fever, and in the so-called aseptic fever, in spite of prolonged high temperature. In conclusion he emphasized the fact that those fevers, such as typhoid fever and pneumonia, in which the height of the temperature is undoubtedly a most important index of the severity of the disease, there exists no such parallelism between the temperature and the nature and severity of the other symptoms as we should expect if these symptoms were caused by the increased heat of the body.

It is a matter of common observation that in the so-called typhoid pneumonias, which constitute one of the groups in which the mortality is excessive, and which are of gradual onset, the temperature usually attains a very moderate elevation, 101° to 103° F.

A large dose of quinine given in the beginning and the early administration of calomel exert a favorable influence upon the temperature.

Sometimes it may become necessary to administer internal antipyretics. Among these antipyrine, not less on account of its sedative action upon the nervous system than on account of its antithermic influence, is preferable. Very large doses are to be avoided, lest they depress the action of the heart.

On the continent of Europe cool bathing is resorted to in the treatment of pneumonia with excessively high temperature. The bathing exerts a remarkable effect upon the nervous system; it is at once stimulant and calmative. The baths should be administered at a temperature of from 85° to 90° F., or even higher; or, in the case of strong people with high fever or severe nervous symptoms, as low as 77° F. Strümpell advises that not more than two or three baths should be administered daily, and that they should not be given at night, except in the event of threatening symptoms. Refreshing sleep is said to follow the application of the bath, with quieter and deeper breathing, and a remarkable sense of relief and refreshment. I have had no personal experience with the use of baths in pneumonia, except in the pneumonias of infancy; but I have repeatedly seen very marked benefit follow cold affusions to the head and chest in severe pneumonia of young adults with high temperature and a tendency to stupor.

A fall in temperature must not always be attributed to the action of an antipyretic drug which may have been given, since the natural history of croup-

ous pneumonia shows a decided pre-critical fall as well as the abrupt defervescence at the crisis.

It is important to relieve pain. This may be accomplished by small doses of Dover's powder, from three to five grains, or the tincture of ipecacuanha and opium in corresponding doses, repeated at intervals of three or four hours, or by hypodermic injections of morphine repeated at intervals of six or eight hours. The doses should be so ordered as to produce a slight amount of continuous somnolence. Mental agitation and anxiety are thus also avoided. Under the influence of these remedies the patient's breathing is often notably improved.

Early in the case, leeches over the consolidated lung often seem to exert a favorable influence. Turpentine stupes may be applied at intervals of four hours, or warm wet compresses covered with oiled silk may be used. Sometimes the application of an ice-bag gives relief. I believe poultices are less used at present than formerly. Certainly unless well made and carefully applied they have very decided disadvantages. The cotton jacket is a good substitute for them, or, still better, a shirt lined with light carded wool, which packs less readily than cotton. Blisters should not be used in the early stages. Dry or wet cupping is sometimes used in place of leeching.

After a time pain ceases to be a troublesome symptom, and the opiates may be diminished either in dose or in the frequency of administration. Carbonate of ammonium may now be given with advantage, partly on account of its stimulant effect upon the respiratory centre, and partly because it appears to exercise a favorable influence as a cardiac stimulant. After the defervescence, it may be replaced by the chloride of ammonium.

In ordinary cases a small amount of alcohol in the form of milk-punch or wine should be systematically administered from the beginning, and in others immediately after the subsidence of the intensity which characterizes the onset of the febrile movement. If the heart flag, alcohol is to be given liberally, the character of the pulse and the first sound of the heart being made the gauge of dosage. Strong black coffee or hypodermic injections of ether or of camphor dissolved in olive oil are to be given upon the supervention of evidences of failure in the circulation. Strychnine is useful as a respiratory stimulant and may be administered hypodermically at intervals of eight or twelve hours.

If there be sleeplessness notwithstanding the administration of small doses of opiates, chloral, in doses of from seven and one-half to fifteen grains, proves a most serviceable hypnotic.

In severe cases of pneumonia I am in the habit of administering throughout the attack the mixture of one part of oxygen with two parts of nitrogen

monoxide, sold in the shops under the name of Walton's oxygen. These inhalations, systematically repeated at intervals of one or two hours, and sufficiently prolonged, have appeared to exercise an admirable influence upon the respiration and circulation and are often, in cases of great restlessness or agitated delirium, followed by a period of quiet sleep.

Upon the supervention of defervescence there is occasionally observed a tendency to collapse which demands the application of external heat and the free use of diffusible stimulants both by the mouth and hypodermically. If resolution be delayed or if pleural pains continue to be troublesome, flying blisters over the affected side are indicated. Convalescence is, in the absence of complications, usually short and satisfactory.

Insidious pneumonias beginning centrally, the lesion progressing little by little, are often difficult alike to diagnose and to treat. These are the so-called typhoid pneumonias. They often run a protracted course and are of unfavorable prognosis.

Death usually occurs from asthenia; sometimes from the mere mechanical circumscription of the respiratory tract, as, for example, when upon the third or fourth day after the appearance of consolidation throughout one lung, the same process is set up in the other lung. When the lesion in the second lung is extensive, the case is not usually amenable to treatment and speedily terminates in death.

MECHANICAL OBSTRUCTION IN DISEASES OF THE UTERUS.¹

BY GEORGE F. HULBERT, M.D.,
OF ST. LOUIS, MO.

My observations of and experience with the diseases of the uterus in which mechanical obstruction, or its congener, stenosis of the canal, is considered to be the malady is so at variance with the consensus of medical opinion and practice, that I wish to make it a matter of record and open the door to criticism and correction, if such are deserved.

It may be somewhat startling to many of those men whose reports of cases and operations relating to the subject under consideration so frequently appear in our medical journals, when we say that in more than ten thousand women coming under our care in hospital and private practice, a large proportion of whom suffered from uterine disease, we have not seen a single case which satisfied us that mechanical obstruction existed or was the disease, although the phenomena supposedly attendant upon that condition were frequently observed; and

¹ Read at the sixteenth annual meeting of the Mississippi Valley Medical Association, Louisville, Kentucky, October 8, 9, and 10, 1890.

that in over three hundred autopsies in which the pelvic contents and conditions were carefully examined, we have not found a single case which positively demonstrated that during life mechanical obstruction existed—that condition which has occupied so much of the time and attention of gynecologists, and has been the *fons et origo* of so much operative procedure and instrumental paraphernalia.

Such being our declaration, it becomes incumbent upon us, in explanation, to present the reasons for "the faith that is in us." In doing so, we shall consider the subject under the following heads:

1. The normal or natural order of things, as related to structure and function.

2. The abnormal, pathological, or unnatural order of things, as related to structure, and the possibility or impossibility of, or interference with, the performance of function.

3. The phenomena usually considered as due to "mechanical obstruction" and their accepted explanation.

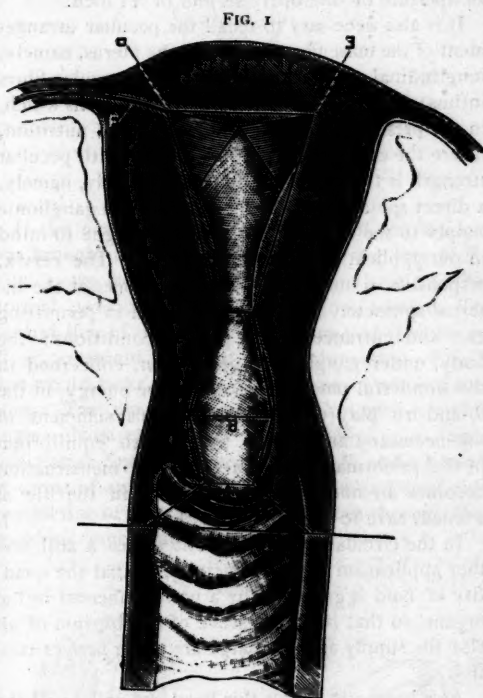
4. Our criticism and reconciliation of inconsistencies, based upon the facts and phenomena observed by us during life and in the dead-house.

5. Conclusions.

First. We may question if menstruation, as observed to-day, is a perfectly normal or natural phenomenon as far as it relates to the quantity of fluid discharged. Reasoning by analogy and from the purely physical standpoint, it certainly seems a strange straining of that universal uniformity of law and order in nature, that in the highest mammalian this particular element in the functional phenomena should be so greatly and unnecessarily overdone. But it seems from the testimony at hand that such is the fact; that at the menstrual period in women we do have a more or less free discharge of fluid, instead of what seemingly should be a simple elimination or excretion. The conclusion, therefore, which we must reach, is that the organ which we are considering must be competent to discharge fluids. The reason that the uterus is composed of involuntary muscle is at once plain to any one who considers its other peculiar function, gestation; but the reason for its peculiar form, the arrangement of its cavities, the complicated interlacement of muscular fibres, the dual nervous supply, and the delicately-poised position in the body is not so evident. In our search for a reason for these things, it occurred to us that the uniformity of law and order in nature might be a possible explanation, and that in the physical laws and conditions governing the discharge of fluids would be found the answer to the query. Investigation in this direction led to the conviction that the application of the conic frusta to containers presented the most perfect conditions in order that the greatest

velocity and quantity of discharge of fluids be attained. The laws and principles involved in this particular domain of physics presented a striking adaptation to the uterus, and seemed to offer a clear explanation.

By reference to Fig. 1 this application may be seen. We have four apertures of exit, at D, E, C, and A. At the aperture of the Fallopian tubes; at the internal os or sphincter, extending down to the line B; and at the external os extending into the vagina, we see the principle of the conic frusta applied with peculiar perfection. As to form, we see this at the internal os, C. It is also to be observed that that part of the entire canal which approaches each



aperture is more or less perfectly tubular in form, thereby assuring a column of liquid above and pressure in the axis of exit. We also find that each aperture is provided with a well-developed muscular sphincter, covered with a thin, closely-adherent mucous membrane, which insures the even closure of the lips of the apertures, save at the external os, where other principles come into play, namely, that of aspiration by the contact of the os with the vaginal mucous membrane, and the elastic play insured by the uterine ligaments, the movements of respiration, and the general movements of the body.

In estimating the capacity of the normal uterus by means of the above principles of hydrodynamics,

it was found that the uterus was capable, with one-fourth of an inch aperture at the point of exit and one inch depth of cavity, with the resultant pressure of the column of liquid contained therein, of discharging 0.64541 cubic inch per second, or 38,624.4 ounces during the twenty-four hours. Reducing the diameter of the aperture to one-thirty-second of an inch, we find a capacity equal to 603.493 ounces for twenty-four hours. In menstruation the average flow for twenty-four hours is from three to five ounces of fluid with a temperature of 100° Fahr. and a specific gravity of 1.055. This gives the uterus a capacity to discharge about 600 ounces more than it is required to discharge, with an aperture of one-thirty-second of an inch.

It is also necessary to recall the peculiar arrangement of the muscular elements of the uterus, namely, longitudinal, oblique, and transverse muscular fibres intimately interlaced, establishing conditions which, in the presence of proper innervation and nutrition, insure the certainty of play of force. With peculiar strength is the fact of the dual nerve-supply, namely, a direct spinal supply to the cervix and a ganglionic supply to the body of the uterus, brought to mind in our application of these principles. The cervix, responsive to immediate reflex influences at the internal sphincter, especially concerned in permitting exit and entrance under proper conditions; the body, under ganglionic innervation, concerned in the wonderful phenomena of creative energy, in the to-and-fro play of its forces annuls sufficient of the necessary antagonism to establish equilibrium in the performance of function, and menstruation becomes an unconscious experience in the life of women, save to the sense of sight.

In the circulatory arrangement we see a still further application of our principles, in that the quantity of fluid is governed by a power inherent in the organs, so that in the presence of equilibrium of all else the supply and discharge are under perfect control.

As a last point under this head, we will recall the *rhythmical intermittent discharge* of the fluid during menstruation, dependent upon the physiological action of the uterine circulation. It may be well termed the evidence of a *uterine respiration*, so to speak, by which the life of function is maintained.

Second. From a pathological point of view, the conditions accepted as being the cause of mechanical obstruction are those that produce narrowing or closure of the uterine canal. These so far as described are flexions, conical cervix, pinhole os, and congenital or acquired partial or complete stenosis, the latter being synonymous with atresia. Some consider displacements without distortion of the canal as mechanical obstruction, but the presence of the open canal makes such claims inconsistent.

However, those who have taken the latter position have made progress, and, in reality, their inconsistency has brought them nearer the truth.

The condition of flexion of the uterus has generally been considered the typical one for mechanical obstruction; and we are presented with the flexed rubber tube as illustrating the condition. But this fails to illustrate the conditions as they actually exist.

The manner in which a flexion is brought about is, we believe, in perfect accord with mechanical laws. Given that vicious constitutional condition, of which the local expression is debility of the uterine tissue and its supporting ligaments, called *softness* by Graily Hewitt, without which the development of a flexion is impossible, the first step is an excessive amount of blood in the parenchyma of the organ and its adnexa. This means lack of muscular tone and increased weight, causing the uterus, as a whole, to rest on the posterior and lower part of the pelvic floor; or, if the conditions are so fortunate, on the lower uterine ligaments. The descent persisting and increasing, owing to the angle at which the cervix meets resistance, or to pressure on the fundus, the cervix or body must move either forward or backward, and the result is a flexion. This is a matter of time; there is not sudden violent bending of the uterus, as occurs in the rubber tube, and the degree of bending is determined by the conditions of the uterine tissue. This bent position having been produced, a process of atrophy at the

FIG. 2.



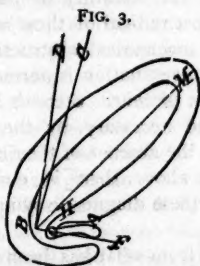
At A is seen the indentation where the normal tissue has atrophied. B and C show the hypertrophy in the posterior wall.

concavity of the angle, and of elongation and hypertrophy at the convexity, at once begins, and *pari passu* with the bending the atrophy and hypertrophy proceed, so that in the process, when completed, that factor which is the essential cause in producing closure in the rubber tube, namely, the V-shaped wedge of tissue at the convexity of the angle, is not present. This is shown by the accompanying cut (Fig. 2).

The hypertrophy of the posterior wall is due, no doubt, to the constant efforts exerted to accomplish the function of menstruation under the changed conditions, and also by the constant irritation produced at the point of impact on the floor of the pelvis.

The atrophy of the anterior wall at the angle is in accordance with the well-known effects of pressure and interference with nutrition. The disappearance of this wedge of tissue in the anterior wall at the site of the angle, in the final rearrangement and adaptation for function, results in the longitudinal and oblique fibres, anteriorly, having instead of two points of departure in contracting, as at the fundus and extremity of cervix, three points, namely, from fundus to angle, and from the angle to the extremity of the cervix, the ultimate result being the same in either case—pulling forward of the anterior segment of the tissue at the site of the angle. The posterior segment would follow, as it does in the rubber tube, on the simultaneous contraction of the longitudinal and oblique fibres, *but for the interposition of the lateral segments, which does not occur in the rubber tube.* Thus it is seen that with a fairly coördinate action of all the fibres in any particular transverse plane of the uterine body closure of the canal is simply impossible. Any angle in the direction of the canal must be more or less straightened, this result being dependent upon the area of uterine tissue brought into action. A perfect *en masse* contraction of the organ must produce more or less straightening and patency of the canal dependent upon the amount of force exerted.

This is illustrated by Fig. 3:



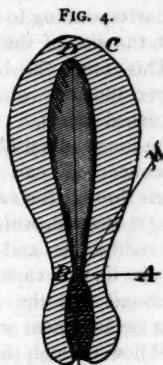
Extreme degree of flexion— 45° : O, showing the atrophy in the anterior wall at the site of flexion; M, O, A, points of departure on the contraction of longitudinal and oblique fibres in the anterior wall. The interposition of the lateral wall between the anterior segment at O and the posterior at B makes it impossible for the inner surfaces at A and B to come in apposition, save by a dominant contraction of the sphincter fibres.

To this antagonism of forces we can attribute the fact that in the most acute flexions the canal is not bent at an angle, but maintains the direction of the segment of a circle.

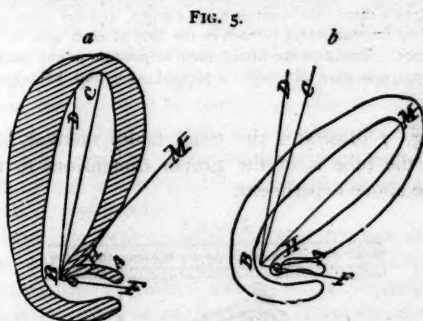
In our examinations to determine the degree of flexion we frequently deceive ourselves, and speak

of acute angles. As a matter of fact, it is rare that we meet with a flexion more acute than a right angle, and in an acute-angled flexion during life we not only would be sure to find the fundus in the position of an anteversion, but the os would be toward the meatus urinarius.

Fig. 4 illustrates what would be present in a right-angle flexion:



If the central line, DB (Fig. 4), of the fundus was brought forward, and placed on the line CB, Fig. 3, we would have the fundus about in the normal position in the body. Now, moving the central line of the cervix forward so that it rests on B, F, we would find that the prolongation of this line would make its exit at the anterior edge of the anus. This would represent a flexion with a right angle. Now place DB on MB (Fig. 5, a), and the central line of the cervix on BF, and we have an angle of 45° . In this case a prolongation of the central line of the cervix would pass out through the posterior commissure of the vulva.

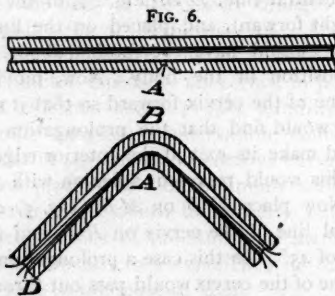


The last illustration shows an extreme degree of flexion, which is found only in the minority of cases. The proof of the disappearance of the tissue at the concavity of the angle of flexion is found in autopsies, and is demonstrated by straightening the bend and comparing the anterior and posterior walls. We have seen some specimens in which the healthy tissue at the concavity was only one line in thickness.

In order that the rubber tube should accord with the existing conditions, it is necessary to select one corresponding in the thickness of its walls and in its calibre with the normal uterus at the internal sphincter, one which is elastic, one in which there is some means of producing the effects of the longitudinal and oblique fibres, and, lastly, one in which a sufficient amount of the wall at the concavity of the angle shall be removed corresponding to the absorbed and atrophied tissue at the site of the angle in the deformed uterus. This done, the bent rubber tube will in a fair degree illustrate what takes place at menstruation in a flexed uterus.

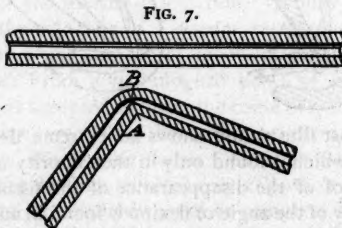
The action of the longitudinal fibres, as far as the anterior wall is concerned, can be produced by passing a few threads through the calibre of the tube, fixing it in the angle desired, which is usually not more acute than a right angle, and making traction on the threads in the line of each arm of the bent tube. It will be found that the obstruction even with this imperfect arrangement will be overcome, and that water will flow through the tube.

This is illustrated by Fig. 6:



The upper illustration shows the prepared tube; at A, V-shaped wedge of the anterior wall removed. The lower illustration represents the same tube, bent at a right angle, and the effect produced by traction on the threads in the line of each arm of the bent tube. The arms are firmly fixed in position in any sustaining apparatus, as a glass tube is slipped over and held by an assistant.

Fig. 7 illustrates the usual faulty method, save that the tube is of the proper dimensions to use in the above experiment.



The closure on bending at B is readily understood, and the effect of removing the wedge-shaped piece of the anterior wall at A, as well as the influence of the longitudinal threads, is possibly better appreciated by the comparison.

From the foregoing we conclude that in the abnormal deviations of direction which are found in flexions, nature in her conservatism still utilizes the principles and agencies present in the normal state, and thereby perpetuates the operation of natural laws and insures the performance of function.

Only by this conception are we able to account for the phenomena of normal menstruation so frequently found, certainly in fifty per cent. of women who have well-marked flexions. We have frequently seen women in whom it was possible to pass into the uterus only a small wire probe, who had at no time suffered from inconvenience during the menstrual flow.

Upon the other conditions productive of mechanical obstruction there is this observation to make, namely, that *at times there exists the capacity to discharge fluid blood*, save in only one condition—*atresia*. All that the uterine canal can justly be called upon to permit to pass through it is *fluid blood*. If the passage of clots, mucous plugs, shreds of membranes, etc., are the evidences needed to establish the conditions for mechanical obstruction, then we are, indeed, undone. We respectfully submit that such a demand is unreasonable, illogical, and unscientific. We conclude, therefore, that the passage of fluid blood is positive proof that there exists a capacity in all the above conditions, save that of atresia, for the performance of function.

Third and fourth. Such being our conclusion, how do we account for the symptoms usually ascribed to mechanical obstructions, namely, pain, intermittent and scanty flow, relief from pain when the flow is present, and inability to pass the uterine sound? The most radical of those who claim that flexions produce mechanical obstruction, freely admit that where menstruation is normal and painless obstruction is not present. Stenosis being the condition considered necessary, by the "obstruction philosophy," in the absence of the diagnostic symptoms mentioned above, there is, consequently, no stenosis; hence these diagnostic symptoms must be explained.

We have seen from what has been presented the importance of that harmonious, perfect, involuntary, and unconscious rhythm of circulatory, muscular, and nutritive action found in health. As the dominant energizing factor we must look to the inherent quality of nutritive and nervous capability, and to this alone; and in grasping the full meaning of this we must go back to the quality of protoplasm before our position becomes rational. This is a universal principle so frequently lost sight of by us as gynecologists, that it is no surprise to see so much error and disappointment in our therapeutics, be they surgical or otherwise.

We must go to the nervous system, especially the sympathetic, for the all-governing factor: to nutrition, as a whole, we must go for stability of function. The nerve-tone coupled with the resultant nutritive activity and power, both impressed, under favorable environment, with the capacity for a higher standard, determines what shall be the future of every organism or part thereof.

A woman born with and maintaining a standard degree of health will never be cursed with any of the conditions we are considering. But in those who are born without the standard, or who, by the vicissitudes and accidents of life, depart from perfect health, in proportion to the deviation we will find the liability to and acquisition of these conditions. In these deviations from the standard degree of health we find lowered nerve and nutritive tone, manifested by irregular and erratic innervation, resulting in irregular, incoördinate action, increased irritability, irregular circulation and muscular action, pain, spasm, and relaxation, alterations of secretion, rapid exhaustion, slow recuperation, imperfect repair, insuring debility, fatigue, pain, and disorder in the accomplishment of function. These are the real factors in the dysmenorrhœa of so-called mechanical obstruction. These, and not stenosis, are the disease.

In the functional antagonism between the cervix and the body of the uterus we find the immediate cause of all the symptoms attendant upon mechanical dysmenorrhœa. Irritation or dilatation of the cervix produces contraction of the cervix. This physiologically and anatomically demonstrable fact, which, if sought for, is always found antedating and associated with mechanical dysmenorrhœa, when followed to its reasonable and logical conclusion, proves that mechanical obstruction, as at present generally accepted, does not exist save in that condition termed atresia.

The constitutional condition means increased local irritability and lowered nutrition. This begets irregular and spasmodic muscular and circulatory action, with altered excessive or scanty secretion and excretion. The excessive flow, the blood-clots, the membranes, and the mucous plugs are due to the influences mentioned, and their expulsion produces severe suffering. Such cases are used by some as an argument in support of the idea of mechanical dysmenorrhœa, especially when a flexion is present. It is unnecessary to answer such arguments. It would be perfectly consistent for these men to assume mechanical obstruction as a disease, in the delivery of a foetus. But given menstruation with fluid blood as the substance to be expelled in a woman who presents the symptoms of mechanical dysmenorrhœa, what facts will aid us in the present discussion? Excluding atresia, it matters not what the local condition is, we find the general devia-

tion from the standard degree of health. A fat and apparently well-nourished woman may present symptoms at her menstrual period similar to those presented by another woman in the opposite condition of general health. In the first instance, innervation, motor power, is at fault; in the second, the fault is in both innervation and nutrition. In both the local conditions are alike. Now, take either of these women and place her under methods of treatment that will allay irritation, produce coördinate action, and improve the general health, and we find that *without any local treatment* all the symptoms indicative of mechanical dysmenorrhœa disappear, and still the flexion, pinhole os, elongated cervix or stenosis, remains. Let the woman return to the original diseased condition, and the symptoms of mechanical dysmenorrhœa again appear. Furthermore, in the worst cases, in which the flow is usually very scanty, we find that in spite of the *persistent stenosis*, as they approach the standard degree of health the flow increases and the suffering decreases and eventually disappears. Manifestly, we must look elsewhere for the cause of the symptoms, and we find it in lowered nutrition and increased irritability, expressed by hyperæsthesia and erratic muscular and circulatory action. It is nerve-ache, muscle-ache, nerve-tire, muscle-tire. It is the cry for quietude, harmony, and rest from the ceaseless and persistent wants of the physiological rhythm of forces. That the local condition in its development has no influence on the systemic we do not affirm. In the progress of every case the time arrives when the local condition, by reflex influences, becomes a very important element in the process: first, from general to local; second, from local to general, until the poor sufferer cries out in agony, afraid to move, afraid to laugh, afraid to lie down; tenderness and pain in all parts of her body, and in constant fear of the monthly onslaught of what should be to her an unconscious relief. This is not enough, it seems, but she must be further accused of carrying around with her a disease called "mechanical obstruction," and be subjected to sponge-tents, and incision and divulsion of the cervix, followed by the use of a stem-pessary.

Especially bearing upon the interpretation of the pain in conditions of supposed mechanical obstruction, we desire to direct attention to a condition in which the pain is of the same character and in which mechanical obstruction cannot be present, namely, the "after-pains" of parturition. We are of the opinion that as far as the location, character, and manner of onset of the pain are concerned, there are no differential features between the pain of mechanical dysmenorrhœa and the "after-pains" of labor, yet in the presence of only *fluid blood* severe "after-pains" frequently occur. There being

no stenosis after a parturition, the severity of "after-pains" in the absence of blood-clots is considered dependent upon nervous, nutritive, circulatory, or muscular influences, even by the most radical supporters of mechanical obstruction in menstruation.

In considering the question of spasm of the internal sphincter as a factor in producing the phenomena of mechanical obstruction, we are impressed with the desperation of many in striving to retain the mechanical idea of dysmenorrhœa. Correctly understood, this frequent and ever-ready action of the internal sphincter serves but to establish our position in antagonizing the mechanical idea. The presence of the spasmodic element is proof positive of unnatural and incoördinate muscular action, as well as increased local irritability. This, coupled with the antagonism existing between the cervix and body of the uterus, readily explains why during menstruation, the spasmodic action should occur, and also why there is no flow until the spasm is relieved. In spasmodic or neuralgic dysmenorrhœa the menstrual flow is almost *nil*. This is not due to a damming back by the spasmodic closure at the sphincter, but is due to the fact that there is no menstrual fluid in the cavity of the uterus, and it is only when coördinate action is accomplished that blood exudes from the endometrium. This is readily proven by the introduction of a tube into the uterine canal during the menstrual period, insuring beyond a doubt patency of the canal.

The diminution or disappearance of pain when the flow is established is now readily understood, when we say that it is due to the rhythm of forces finally accomplished, to nervous, muscular, and circulatory factors, within the tissues, and not to the forcible expulsion of retained fluid. The failure to pass the probe or sound is a mere matter of diagnosis and dependent upon the hand that manipulates it.

Finally, we appeal to post-mortem investigations. Any one who has labored in the dead-house, investigating the pathology of those conditions which are considered active factors in the production of mechanical obstruction will meet with one stubborn fact, namely, that the conditions found after death are far different from those that would be expected from the severity of the symptoms during life. Consider, for instance, endometritis, and in the dead-house the specimen, macroscopically, is hardly distinguishable from one obtained from a subject who had never during life suffered from such a disorder. Microscopically we find the difference, and in the vast majority of cases are forced to conclude that this difference is more a functional than organic one. Take also any specimen and study the subject of stenosis of the canal, and how often, unless there is stenosis from scar-tissue in the mucous tissue lining the canal or

congenital atresia, will you find a contraction that fluid blood would not find its way through; certain it is that fluid blood will travel through the capillary system, and the uterine canal, save in atresia, has a diameter equal to at least several capillary vessels. We also find in post-mortem examinations that the uterine canal, even in the presence of great deviations in surrounding structures, or extreme distortion and displacement of the organ, is free from acute angles, and that the cavity is tubular, especially at the site of the internal sphincter. These facts are readily proved by sections in any direction, and are readily accounted for if we accept the influence of the muscular elements and correctly interpret the mechanical laws at work in the form and structure of the uterus in their relation to the performance of function.

In the attempted demonstrations of the existence of mechanical obstruction by its supporters, the fact that they were dealing with a *dead* organ seems to have been lost sight of; for in no other way can we explain the usual methods of attempting to prove mechanical obstruction *during life* by forcing a *lifeless flexed uterus* into a greater degree of flexion, for even dead as it is it will not remain in the forced position. It would seem unnecessary to remark that pickled specimens are not suitable for demonstration, either affirmative or negative, yet they are frequently presented as showing the state during life.

The therapeutic measures which are successful in relieving and curing mechanical dysmenorrhœa demonstrate beyond all doubt the correctness of our position. And in using the expression therapeutic measures, we wish it distinctly understood that we exclude all local, surgical, or mechanical treatment to relieve the supposed stenosis of the canal. The use of reconstructives, such as good, palatable food, the elegant gluten and malt preparations, and the hypophosphites and bitter tonics, for the purpose of restoring the standard nutrition; the employment of narcotics, anodynes, antispasmodics, such as opium, compound spirit of ether, antipyrine, viburnum opulus and viburnum prunifolium, *alætris farinosa*, *helonias dioica*, *cimicifuga*, *scutellaria*, *laterifolia*, and *gelsemium*; the valuable anti-congestive drug, *hydrastis*; the coördinating muscular tonics, *ustilago maydis* and quinine; and last but not least, electricity, are attended with results eminently successful. The intelligent and persistent use of these means will, in the absence of atresia, cause all the phenomena of mechanical obstruction to disappear, while the local deviation, as far as form and displacement are concerned, may remain. The local state, as far as secretion and function are concerned, will be restored to a normal condition.

Furthermore, it is a matter of daily observation,

that all surgical and mechanical methods of treating dysmenorrhoea which are not assisted by pronounced improvement in the systemic, nervous, and nutritive forces of the patient are ineffectual.

We respectfully submit the following conclusions:

1. That in the natural order of things we find the uterus in form and structure endowed with a capacity for the performance of the function, menstruation, so far in excess of any legitimate demand, that with a diameter of the canal of one-fourth of an inch at the sphincters the excess is 7724.8 times the demand, and with a diameter of one-thirty-second of an inch the excess equals 120.7 times the requirement.

2. That in the pathological conditions considered essential for mechanical obstruction we find that the conservation of force so regulates the conditions that this capacity is not abolished, but persists in an eminent degree, so that in the presence of the normal physiological energy the function is accomplished, unless there is atresia.

3. That the phenomena considered as dependent upon mechanical obstruction are not due to the forcible expulsion of retained fluids through the uterine canal, but are produced within the tissues, and are dependent upon *disturbed* rhythm of physiological forces evolved by abnormal innervation, muscular action, and circulation.

4. That the demand upon the uterus for the passage of blood-clots, membranes, mucous plugs, uterine sounds, sponge-tents, uterine dilators, etc., in order that the diagnosis of mechanical obstruction may be made, is not only vicious in the extreme, but irrational, illogical, and unscientific.

5. That the correct and rational interpretation of the testimony offered by symptomatology, pathology, and therapeutics, removes mechanical obstruction from the domain of gynecology as a demonstrable fact, save in atresia uteri.

3026 PINE STREET.

THE MEDICAL EXPERT.¹

BY J. T. ESKRIDGE, M.D.,
OF DENVER, COLORADO.

At a recent meeting of the Medico-Legal Society of Denver, the President appointed several committees to report before the approaching session of the Legislature of Colorado, on certain necessary changes in our laws in relation to the establishment of a State Lunacy Commission and a State Board of Charities. Committees were also appointed to consider and report on the medical expert, the care and protection of our insane, prison reform, and the necessary statutory changes to make official autopsies more scientific and thorough.

These several committees are expected to report on the various subjects committed to them, so that the Society's Committee on Legislation, after hearing the discussion by members of the Society, may be prepared to enter upon their duties, and endeavor to secure legislative enactments in accordance with the Society's wishes.

No one who has compared the laws of many of the Eastern States of this country on the above subjects with the meagre legislation, or the absence of legislation, on the same in Colorado, can doubt the propriety and timeliness of the Medico-Legal Society's action upon these neglected but important subjects.

As a preliminary to the report of the Committee on the Medical Expert, I wish to consider the status and necessary qualifications of the medical expert most in demand by the majority of the legal fraternity, together with some suggestions looking to a partial prevention of the confusion resulting from the present method of employing medical expert testimony.

According to decisions of various courts of law, anyone who possesses special knowledge of medicine and subjects relating thereto, whether he be a graduate in medicine or not, and regardless of the school of medicine to which he belongs, may be called to testify in court as a medical expert. It seems, then, impracticable for any State to enact a law to prevent either side of a case from calling any medical witness desired, and the jury must be left to judge of the fitness of the expert and the value of his testimony.

There are several causes which aid in producing the unsatisfactory results obtained by the present method of using medical expert testimony. In the majority of instances the attorney for the plaintiff secures experts that best serve his purpose in the case, and the lawyer for the defence likewise endeavors to fortify his side of the case by the testimony of witnesses with different opinions. We cannot blame the lawyer, whose whole training has been to win the cause of the client rather than to guide the case and to see simple justice done. If he can secure the services of respectable witnesses who will testify in favor of his client, it seems to him proper and right. He leaves the witness to justify his own testimony. I am loath to believe that all lawyers, or even the majority of them, are anxious to gain their cases regardless of right, but I am convinced that many bright and honest legal advocates are deceived by the misrepresentation of their clients. A lawyer once impressed with the justness of his side of a case (I do not say absolutely convinced), is in sympathy with his client, and apparently without examining into the merits of each side of the case, he seems to think and act as if every means tending

¹ Read before the Medico-Legal Society of Denver.

to support his side is justifiable and should be employed.

The position of the medical witness should be directly opposite to that usually assumed by legal advocates. In impartiality he should rival the most upright judge and the ideal juror. In the medical aspects of a case he should take pains to inform himself without reference to the side on which he is to testify. He is but human and should not be subjected to the slightest mercenary temptation that might in anyway bias his judgment. If the medical witness should be as impartial as the judge and jury, and I think no one will deny this postulate, he should not be subjected to temptations from which they are free. How ridiculous it would seem to allow plaintiff and defendant each to choose and pay his jurors and judge! Yet, the medical expert is required to testify to, and in a certain sense, sit in judgment upon facts which neither the learned judge nor the jury "just and true" claim to be able to understand.

The habit of separate and independent examinations by medical witnesses often leads to erroneous conclusions, because, in these days of the rapid accumulation of medical literature observation and scientific investigation, no one person can become thoroughly conversant with every department of medicine. To comprehend all the facts pertaining to a difficult and obscure case, the specialist and the general practitioner, both of medicine and of surgery, are often necessary. What one fails to observe, the other will very probably see. No two minds follow exactly the same train of thought. If the examination of a person is made by a physician subpoenaed to testify for one side, he, in the majority of instances, is alert to discover symptoms more favorable to the side that has employed him than to the opposing one. Imperfect or partial examinations are more likely to result, and the personal equation of the examiner is in greater danger of being magnified, when the examination is made separately than when the physicians examine and consult together as a board. One physician may be thorough in certain departments of medicine and not in others, or he may hold certain theories which carried to their ultimate conclusions become mere vagaries. Such defects may be partially obviated by joint examinations. The editor of the *British Medical Journal*¹ writes:

"In Leeds, the custom has, we believe, long obtained among the leaders of the profession to refuse to give expert evidence on any case until after a meeting of the experts on both sides; and this practice has worked so well that the Leeds Assizes are notable for the absence of the conflicts of scientific testimony which elsewhere have done so much to discredit such testimony in courts of law."

To meet the objections against the present system of employing medical expert testimony, Dr. Morton Prince, of Boston, in an able article entitled "The Present Method of Giving Expert Testimony in Medico-Legal Cases,"¹ makes the following suggestions:

"1. The examination of all claimants should be made by experts on both sides, but in conjunction with each other and acting as a Board. The examination should be conducted as frequently as the Board should determine. This would not prevent preliminary and individual examinations by either side.

"2. The Board of Experts after thus acting should make a sworn written report to the court in accordance with a specified form; that is, the report should contain a distinct and separate statement of the medical history, objective facts, and finally the opinion of the experts.

"3. If the Board is unable to agree on the purely objective facts (for example, whether there was or was not paralysis, loss of sight, fracture of bone, etc.), the court should, at its discretion, direct one or more official State experts to examine the claimant in conjunction with other experts, and report likewise in writing their opinions.

"4. A number of experts in each department of medicine should be appointed by the Governor, and from them the court should select experts at its discretion.

"5. At the request of either side of a case, the court should direct one or more State officials to make an examination.

"6. All experts should be examined in court as now."

It is easier to criticise the suggestions made by Dr. Prince than to suggest better ones. There are, however, many objections to State medical experts, and to their appointment by the Governor. If the appointing power rested with the Governor, it would become a part of the political machinery of the State, and candidates for positions on the Board would receive their appointment more on account of their political influence than because of scientific qualifications for the work.

Further, there would be a temptation for ambitious, but unscrupulous, physicians to seek such appointments on account of the prestige it would give them to be recognized as State medical experts. Any ignoramus in Colorado, be he a graduate in medicine or not, might be sure of such an appointment if he, or his friends, could control a few hundred votes. Men should be sought for such positions and should not seek the positions. Again, the influence that such a Board would have with a jury would be as great if composed of unqualified persons as it would be if none but the most competent men in the State were on the Board. If such a body of official experts should have no further qualifications for their positions than would be necessary to secure their appointment through political influence, it might lead to exorbitant awards or unjust punishments. It seems to me that in Colorado, at least, an official Board of experts, appointed

¹ March 1, 1890.

¹ Boston Medical and Surgical Journal, January 23, 1890.

annually or less frequently, would probably be productive of more harm than good.

Might not the benefits expected from a State Board of medical examiners be obtained by other, and less elaborate means, without incurring the objections against such a State organ? Much of the confusion resulting from conflicting expert testimony might be avoided if the court were required to name experts to testify in a given case, regardless of the wishes of the lawyers for either plaintiff or defendant, and guided solely by the qualifications of the experts for the particular case. This would not prevent the attorneys from calling physicians of their own selection, provided that no expense beyond the ordinary witness fee were incurred by the county for these witnesses. The experts named by the court should have a definite fee for their services, regardless of their opinion in the case. Testimony from experts so appointed and paid would be entirely unprejudiced by mercenary considerations, and would deservedly have more weight with a jury than the testimony of physicians selected and paid by either the plaintiff or the defendant.

If we had a law making it obligatory upon the court in every case requiring medical expert testimony to appoint one or more experts, the number depending upon the importance of the case and the wishes of the counsel for each side, then the experts appointed by the court, and those chosen by the attorneys, if any were so selected, should be required to examine jointly all such persons whose claims might be under investigation, and consult together as a board. The number of examinations should be determined by the majority of the board. Individual and preliminary examinations should not be denied if consented to by the attorneys and by the person whose claims might be under investigation.

It is remarkable how infrequently physicians disagree in consultation, either in hospital or private practice, and equally remarkable how frequently physicians employed by opposing counsels disagree in their testimony on the witness-stand. Much of this difference of testimony occurs from the one-sidedness of the physician's information of a case. Were examinations made jointly and consultations held afterward, this source of error would be excluded.

The following is the report of the Committee on Medical Experts appointed by the President of the Medico-Legal Society of Denver:

1. "That it is the sense of this Society that its Committee on Legislation should endeavor to have a law enacted at the approaching session of the State Legislature empowering and requiring the judge, before whom a case necessitating medical expert testimony is to be tried, to select one or more medical experts, the number depending upon

the importance of the case, the wishes of the attorneys for both sides, and upon the approval of the presiding judge.

2. "That the Board of Physicians so selected by the court be required to examine the claimant or defendant jointly as a Board, and that other physicians selected by the attorneys for either side be permitted to be present and participate in the examinations and discussions of the Board.

3. "That the physicians selected by the court be required to testify in court concerning their examination and submit to cross-examination as is now the custom.

4. "That a definite expert fee be allowed by the court and paid by the county for each of the physicians selected by the judge.

"All of which is respectfully submitted.

J. T. ESKRIDGE,

H. A. LEMEN,

A. H. WYCOFF,

Committee.

THE DIAGNOSIS OF EARLY ECTOPIC GESTATION.

By J. M. BALDY, M.D.,
OF PHILADELPHIA.

IN following me into a discussion of this subject I wish it to be distinctly borne in mind that what I have to say is applied to ectopic gestation only in its earliest stages, namely, in that period when the rupture is liable to take place from the tube into the broad ligament, or into the abdominal cavity, as well as the period immediately following the rupture.

It would seem from this that I accept the views of Mr. Tait as to the pathology of extra-uterine pregnancy, and, with a few reservations, this is the fact. My whole line of argument will be based on the premises that the conception has taken place in one or other of the Fallopian tubes, or has subsequently found its way there, and has there developed. I do not wish to be understood as denying that there is such a condition as ovarian or abdominal pregnancy, but for our present purpose we may safely ignore that phase of the question altogether, because in the early stages of the disease with which we are dealing the three conditions could hardly be differentiated. It is certain that an overwhelming majority of the cases are tubal in their incipency, and if an occasional case is either of the other two varieties, it cannot make the slightest difference from a diagnostic and therapeutical point of view.

In this discussion I propose to ignore, to a great extent, the ancient literature of the subject. However valuable this has proven in times past in establishing the pathology of extra-uterine pregnancy, it is to-day of far less value from the point of

view of this paper than the experience and literature of the last few years. I infinitely prefer the testimony of men who have made their observations with a pretty clear idea of the pathology and frequency of this and allied diseases, to that of men who were groping in the dark with little or no idea of this or any of the many diseases with which it may be and has been confounded. With the recent data, then, to supplement my own personal experience of more than twenty cases of early ectopic gestation, I shall be satisfied to draw my conclusions.

The symptoms of this disease have been variously classified, and it is claimed that if a certain number of them be grouped together in the same patient, the presence of the abnormal gestation is assured. In considering these symptoms we will take them as nearly as possible in the order of their importance.

Menstruation.—This may be absent for one or two periods, and then a spurious flow appear which is at first lighter and finally darker in color than normal. It is irregular, prolonged, and contains, after awhile, clots and shreds. There may be no missed period at all—simply a prolongation of the normal flow, with the above characteristics. I have had patients in whom this spurious menstruation did not appear at all; in whom there was neither a scant nor prolonged flux. To a great extent this depends on the period in which the patient is seen; the earlier, the less likelihood of irregularities. Often the patient gives a history of similar irregularities, and one is very apt to be misled by this fact.

Pain.—This pain is of a somewhat different character from other pains to which women are liable. Early in the growth of the gestation-sac the pain is slight, and occurs at long intervals, and as a rule not much notice is taken of it. Often it disappears altogether for a few weeks, and would be forgotten but for its reappearance in redoubled force. It is intermittent in character, cramp-like, becoming more and more severe, and more and more frequent. At times it becomes so severe as to cause syncope. Its situation is almost invariably pelvic, and low down in the abdomen. It can be safely said that this symptom is invariably present. As a rule, it is the one thing which forces the patient to seek the advice of her physician. Of all the individual symptoms this one has proven of most value to me in recognizing the true condition. This almost characteristic behavior of the pains in connection with the behavior of the menstrual discharges when they are abnormal should always put one on his guard, and force him at least to weigh carefully all the *pros* and *cons* before dismissing the possibility of ectopic gestation.

Expulsion of decidua.—The decidua may be thrown off in the shape of shreds, and mixed with

clots of blood, or, which is more usual, after a few days the shreds may come away in one good-sized mass. This symptom is theoretically of the greatest importance, and when it is demonstrated is conclusive (of pregnancy). Practically, its value is in the majority of cases lost. As a rule, we must depend on the statements of the patient in regard to the matter, and these statements are too often worthless. I find that patients do not observe closely enough, or are so ignorant as not to be able to distinguish between blood-clots and other things. Again, the decidua is often lost in the water-closet or in a vessel-full of clots. I have known women to declare they were discharging shreds, when a careful examination failed to reveal a sign of one. Taking it all in all, I do not attach much value to this sign—realizing, however, its great importance when it can be properly demonstrated. Its absence is usually in the early weeks of the disease.

General signs of pregnancy.—As a rule, these are the reflex, gastric, and breast symptoms of normal pregnancy, as well as the bladder and rectal disturbances of the same condition. The same symptoms may be present in women who are not pregnant, and may arise from almost any cause of irritation in the genital canal, and are only too frequently present in such diseases as ovarian cyst, pyosalpinx, etc. Standing alone they are worthless for determining pregnancy, especially the extra-uterine variety.

Period of sterility.—As a rule, the patient gives the history of having had a child or miscarriage some years previously, and of being sterile since then. This is not always the history, however, as some women conceive with the foetus extra-uterine soon after the first pregnancy.

Vaginal discoloration.—The vagina almost invariably has the usual discoloration of pregnancy.

Cervix.—The cervix is usually enlarged and soft, and the os is patulous; but I have noticed an absence of these symptoms in several cases, and they cannot be considered as at all constant.

Body of uterus.—The fundus is enlarged and softened, and usually crowded either far forward against the pubic bone or pushed to either side. It is more or less immovable. Like the cervical signs, however, these conditions are not constant. I have studied patients for several weeks at a time, in whom the uterus was normal in every particular, trying to arrive at a diagnosis, and yet ectopic gestation was finally proven to be present.

Uterine appendages.—At times an examination of the appendages of one side is absolutely negative, while on the opposite side a tense, adherent, tender cyst is present. In several cases I have found this cyst almost in the median line, posterior and apparently so continuous with the cervix as to make

it impossible to find any dividing-line between them. In one case the fundus was so high and so far back as to seem to be a part of the cyst. On the other hand, cystic masses (apparently characteristic) will be found on both sides, one proving to be an ovarian cyst, an ovarian abscess, a pyosalpinx, or a dermoid cyst, the other being demonstrated to be a tubal pregnancy. All these conditions I have seen, and have studied with the specimens in my hands. The local condition is so varied and deceptive that only corroborative evidence can be obtained from it. The ectopic gestation-cyst, if kept under observation, increases very perceptibly in size from time to time, but it is exceedingly dangerous to wait and watch for this symptom.

Pulsation of the cyst.—I have studied the disease with reference to pulsation, and in spite of what others have said as to its importance, I have been unable to find the slightest thing characteristic about it. The pulsation is present in so many pelvic conditions, especially in distended Fallopian tubes, that I have found it worthless as a diagnostic sign in this disease. In proven cases of ectopic gestation, in my experience, it was present in some and absent in others.

Ballottement.—I have never been able to observe this sign in any case, nor have I seen a specimen earlier than the third month in which I think it could have been demonstrated. The number of cases in which it is claimed that it has been observed is small, and to me it is of very doubtful value as a diagnostic aid.

The patient considers herself pregnant.—In the majority of cases that I have seen the women did not think they were pregnant, or at least were very uncertain when questioned on this point. Only two or three of my patients stated positively that they thought themselves pregnant, and we all know how often women think themselves so when they are not. I cannot believe that this point is of much value in diagnosis.

Temperature and pulse.—A number of times I have noticed a persistent and considerable rise of temperature and increased pulse-rate, and the patients have occasionally complained of feeling chilly. The elevation of temperature is due, no doubt, to the local pelvic inflammation which so often accompanies this condition, and which causes the adhesions almost always met with.

When we come to the period of rupture, symptoms of great pain, followed by collapse, and all the signs of concealed hæmorrhage, make the presumptive diagnosis easy, especially when taken in connection with the past history.

It would be natural to suppose that if a number of these symptoms presented themselves in the same

patient a diagnosis of extra-uterine pregnancy could readily be arrived at. Such is the belief of some of the profession. Reeve¹ states that "in a patient presumably pregnant, having had more than one such attack as this (he refers to the paroxysmal pains), and having a tumor to be felt *per vaginam*, there could scarcely be a doubt of the existence of extra-uterine pregnancy." My own experience has taught me the fallacy of this, and I am coming more and more to regard my position taken in a previous paper² as the true one. In that paper I made the three following propositions:

1. In a certain proportion of cases of extra-uterine pregnancy, in the early stages, the diagnosis is easy and unmistakable.

2. In a certain (quite large) proportion of cases sufficient symptoms are present more than to warrant a diagnosis of extra-uterine pregnancy, such a pregnancy not being present.

3. In a certain other proportion of cases the symptoms, until rupture has occurred, are entirely wanting, or are of such dubious character as in no wise to warrant such a diagnosis.

The following history is that of a patient who passed under my observation:

CASE I.—Mrs. X., aged twenty-six years; married for seven years. Had one child six years ago. Puerperal trouble followed confinement, and she has not been pregnant since. Two and a half months ago she missed her menstrual period, and soon began to develop symptoms which made her think she was pregnant. In the course of about six or seven weeks she began to have a bloody vaginal discharge, which finally contained shreds and clots. About this time pains, which had been present in slight degree, became severe and paroxysmal. On account of the bleeding and pain she applied to me for advice. On close questioning she acknowledged having passed a mass, but was doubtful whether it was blood-clot. A vaginal examination revealed a softened cervix, a slightly-enlarged uterus, with a tense, adherent, tender cyst on the right side, the uterus being crowded to the left. A diagnosis of tubal pregnancy was made, and the gestation-sac removed two days afterward.

This case presents a line of symptoms which apparently could lead to but one conclusion, and so the event proved. But contrast this case with the two following, which occurred in my practice.³

CASE II.—The patient presented general and reflex symptoms of pregnancy, such as swollen and painful breasts, containing milk; morning nausea; enlarged abdomen; frequent micturition; constipation, etc.; and had missed one or two periods. The patient thought herself pregnant, though she had not been pregnant for some years. There was

¹ American Journal of the Medical Sciences, July, 1889.

² Medical Record, September 21, 1889.

³ Ibid.

irregular bleeding for a week or two, with colicky pains in the abdomen, and the passage of blood and shreds *per vaginam*. Examination showed a cystic tumor to one side of the uterus, painful to the touch. The patient was seen by Dr. J. Price, and several other men, all of whom concurred with me in the diagnosis of undoubted extra-uterine pregnancy. Several days afterward an operation disclosed an ovarian cyst as large as an orange.

CASE III. presented general and reflex signs of pregnancy almost the same as in Case II. She had not been pregnant for years, when she missed a period; had profuse bleeding with clots and shreds, and severe pelvic pains of a colicky character. Examination disclosed a pelvic mass at the side of the uterus, evidently a distended tube. A diagnosis of extra-uterine pregnancy was made by Dr. Kynett, several other men, and myself. Operation in a few days by Dr. Penrose disclosed pyosalpinx.

The following cases simply emphasize what my own cases prove:

CASE IV.—Mrs. D.;¹ a patient of Dr. Weeks, of Trenton, N. J.; married for four years; never pregnant; menses always regular, and not painful. One week after her January period she noticed dull pain in the lower part of the abdomen, followed in another week by sick stomach and all the symptoms of pregnancy. Her menses were absent for six weeks, when she was suddenly seized with severe pain and a flow. The woman finally took to her bed. The discharges seen by both doctor and nurse were lochial in character, and contained shreds. A tender cystic mass was found to the left and posterior to the uterus; the fundus was crowded forward and to one side. A diagnosis of extra-uterine pregnancy was arrived at, and I was asked to see the patient. I found everything as narrated, and verified the diagnosis. Two days later abdominal section disclosed a large pelvic (intra-peritoneal) abscess. The Fallopian tubes and ovaries showed no signs of having been impregnated.

CASE V.—Mrs. K.,² a patient of Dr. B. C. Hirst, aged twenty-five years. Her last child was born two years ago; menses were absent for two periods, but had returned some time before being seen by Dr. Hirst. History of discharge of clots and membrane, with great pain in pelvis and abdomen. Examination showed the uterus enlarged, and displaced to the right side; os patulous; and a tumor in left broad ligament the size of an egg. Extra-uterine pregnancy was diagnosed. At the operation which followed a broad-ligament cyst was removed. The woman afterward passed remnants of an abortion.

Dr. Joseph Price,³ in a patient sent to him by Dr. Garrett, of Germantown, found a mass on the left side of the pelvis as large as a three months' uterus. The woman had been married for ten months; the menses ceased three months after marriage, and she had all the symptoms of pregnancy. There was

absence of two periods, followed by hæmorrhage and pain. Extra-uterine pregnancy was diagnosed. Abdominal section revealed a small suppurating cyst of the right ovary, with an adherent hydrosalpinx.

Dr. H. C. Coe⁴ reports the case of a woman whom he saw in consultation. She had missed two menstrual periods, and presented the subjective symptoms of pregnancy. One day she had an attack of violent pain in the abdomen, with evidences of collapse. A mass was found on the right side of the uterus, which gradually increased in size week by week. She had a bloody discharge from the vagina. A sound was passed into the enlarged uterus a number of times, and both the galvanic and faradic currents were applied. The uterus was enlarged, the cervix soft, and the os patulous. The tumor was fixed and fluctuating. Finally, she had another attack of pain, with apparent collapse. Extra-uterine pregnancy was diagnosed. Abdominal section revealed a normally-pregnant uterus, with a large adherent ovary on the right side.

Dr. G. W. Johnston reports⁵ the case of a patient, aged twenty-two years, who, shortly after the cessation of a monthly period, began to suffer from nausea, frequent micturition, and colicky abdominal and pelvic pains. Her breasts were tender, the uterus enlarged and anteposed; on the right side of the uterus and posterior was a round, exquisitely tender, semi-fluctuating tumor, the size of a lemon. The attacks of pain were paroxysmal, and on several occasions were almost followed by collapse. She had a vaginal discharge which contained shreds. Extra-uterine pregnancy was diagnosed. Abdominal section revealed a tubo-ovarian cyst the size of a lemon.

W. Gill Wylie⁶ says that he has operated on three cases in which the diagnosis of extra-uterine pregnancy had been made, in two of which a supposed cure by electricity had been recorded, and at the operation no sign could be found of ectopic gestation having existed. The cases were simply those of Fallopian tubes dilated with fluid, one tube containing over two pints of fluid.

An article by Vander Veer⁷ discloses two cases (Mundé and Janvrin) of pregnancy in one horn of a bicornate uterus, which were mistaken for ectopic gestation. He also reports two cases (Warren and Vander Veer) of normal pregnancy, mistaken for ectopic gestation.

It certainly is unnecessary to produce more evidence than this in order to convince the most sceptical that the symptoms of extra-uterine pregnancy are very often present when the disease is

¹ Annals of Gynecology, May, 1890.

² Personal communication.

³ Annals of Gynecology, March, 1890.

⁴ American Journal of Obstetrics, January, 1890.

⁵ Ibid., August, 1889.

⁶ Ibid., January, 1890, p. 71.

⁷ Ibid., November, 1889.

anything but an ectopic gestation. I am ready to grant that all the symptoms which we have considered as being produced by this disease were not present in each of the cases presented; but in what disease in the whole range of medicine are all the symptoms present in one case?

The most prominent and valuable points are noted in each case, viz.: the subjective signs of pregnancy, the pains, the missed menstrual period, and the bloody vaginal discharge containing shreds or masses, together with the cystic tumor in the region of the broad ligament. A study of these cases will show most decidedly that no other conclusion could have been arrived at in any single case, and in addition, the names of the attending physicians are a sufficient guarantee that the symptoms and history were carefully weighed. There are many more such cases on record, and very many which are not but should be.

It is interesting in connection with this to note the large number of diseases which have been mistaken for ectopic gestation in its early stages. Dr. T. Gaillard Thomas says: "There are few pelvic conditions which develop in the female, from phantom tumor to fecal impaction, which I have not seen confounded with ectopic gestation." Amongst the few cases I have reproduced in this paper the mistake was made in cases of ovarian cyst, pyosalpinx, pelvic abscess, broad-ligament cyst, ovarian abscess, normal pregnancy, pregnancy in one horn of a bicornate uterus, and tubo-ovarian cyst. These are not all of the diseases which may be so mistaken. If the mistake is to be made in one class of cases oftener than another, I believe it will be in patients in whom an abortion has taken place, followed by a pelvic tumor (abscess or pyosalpinx)—or a pelvic mass may have existed formerly and unknown—the facts of the abortion being unknown or concealed. The case of Dr. Weeks, as quoted above, was such a one.

Now, with all these chances of mistake in diagnosis, have we considered all the possible errors? By no means. We still have to consider those cases in which extra-uterine pregnancy exists, but is not suspected, and cases in which it was taken into consideration, but was dismissed for lack of sufficient evidence. The following two cases which occurred in my own practice illustrate these points very well:

CASE VI.—Mrs. R.¹ came to me complaining of abdominal and pelvic pain. After giving a negative history she was put on the table, a diagnosis of pyosalpinx was made, and an operation advised. One week later she sent for me, and I found her upon her bed. She said she had had abdominal pains during the entire week. She arose from her bed in order to obtain a letter. While on her feet

she was seized with colicky pain. As I watched her the idea suddenly seized me that possibly this might be extra-uterine pregnancy. I carefully examined her with this possibility in view.

She had been bleeding, at times, for more than two weeks; the flow was pure blood, with no shreds or clot. She had not the slightest general or reflex signs of pregnancy; her husband had been away for only three weeks; she had not missed a period, nor had she had a scant one; and she had had children for the past six or eight years at regular intervals.

The examination showed the uterus in good position, and the cervix perfectly normal for a multipara. There was a mass posterior to and apparently continuous with the cervix, so that I had not been able clearly to feel the fundus anteriorly. I should have considered the mass the fundus. The only symptoms I had then for diagnosis were the bleeding and the pain. These symptoms are such constant and almost invariable companions of all serious pelvic troubles, that without something more to sustain the diagnosis it had manifestly to be given up. Dr. R. H. Hamill made a most careful examination for me, and could find nothing more on which to base a diagnosis; in fact, he did not think that it was a case of ectopic gestation. Our reasons for the diagnosis of pyosalpinx were the absence of symptoms of extra-uterine pregnancy, and the facts that the woman had been complaining of pelvic pain for the past three or four years, had pain at her menses, and painful coition and defecation. She had had more or less leucorrhœa, which had suddenly become profuse, with itching about the vulva and painful micturition. She was in that condition of life in which one would expect her husband to infect her almost certainly with gonorrhœa. She had a high temperature and pulse, and chilly creeps. Taking it all in all, the indications were clearly for pelvic inflammatory trouble, and against extra-uterine pregnancy. It proved to be pregnancy of the fimbriated end of the tube.

CASE VII.—Mrs. T. C.,¹ aged twenty-four years, married for nine years. Has had two children, and no miscarriages. The last pregnancy was six or seven years ago. After this labor she was in bed for eight weeks with a "sore and swollen belly," and since then she has never been free from pelvic and abdominal pain. Her menstruation has been regular but profuse, lasting eight or nine days. In the interim between her first illness (following the birth of her child) and the present, she had an attack of abdominal pain, which confined her to bed for a week or more. On November 15, 1889, she came to me stating that her regular menstrual period had come on five weeks previously, and that she had been bleeding more or less ever since. The constant pain she had been having had become worse. She had the appearance of a very sick woman, her temperature was elevated, her pulse quick, and she was having chills and creeps. An examination of the pelvis showed the uterus in fair position and of normal size. There were irregular cystic masses on each side, the larger being on the

¹ Medical Record, September 21, 1889.

¹ THE MEDICAL NEWS, February 15, 1890.

right. A diagnosis of chronic double pyosalpinx, with an acute attack of pelvic peritonitis, was made, and an operation advised. I removed from the right side a tubal pregnancy (verified by microscopical examination) which had advanced to about the sixth or seventh week; from the left side an ovarian cyst the size of a hen's egg.

The results of the operation were a complete surprise to me. My diagnosis of pyosalpinx, which was concurred in by Dr. T. Hewson Bradford, was made with the utmost confidence, and we had not the slightest doubt that it would prove to be correct. Ectopic gestation never entered into consideration. As soon as the patient was well enough I questioned her closely to see wherein we were at fault in our deductions. The questioning disclosed the following facts: At no time during the past year had she missed a menstrual period, nor had there been a scant or delayed one. At no time had she any signs of pregnancy, such as she suffered from when she was previously impregnated. In fact, she does not even now believe that she was pregnant, basing this scepticism on the absence of a missed period and the early signs of pregnancy. Her breasts were of normal size, the areolæ were not enlarged or changed in color; there was no tingling or itching about the breasts, though they contained a small quantity of milk—however, she states that such had been their condition since the birth of her last child. There was no decidual discharge; the only thing she passed besides blood was "a piece of whitish matter," such as she was in the habit of passing at the end of each menstrual period. This point has been most carefully inquired into, and she answers very intelligently. In addition to her statements we have those of a carefully-trained nurse. The patient was in the hospital two or three days before the operation, bleeding constantly. The nurse declares that the napkins were soiled with a discharge entirely free from clots or shreds. Stomach symptoms were entirely wanting. The pains were, according to her statement, not different from those she had with her previous attack of probable pelvic peritonitis.

In addition to these cases of my own, I will emphasize my position by reference to a few others occurring in competent and skilled hands.

G. M. Tuttle¹ reports the case of a woman who was under observation for several months. A diagnosis of double pyosalpinx was made. The operation revealed a pyosalpinx on the left side, with a tubal pregnancy on the right side.

H. T. Hanks² records a case on which he operated. The physician who sent him the patient said that she had suffered very little, and advised that no treatment be instituted. After reaching New York, however, she began to suffer, and a diagnosis of pyosalpinx was made. At the operation which followed a tubal pregnancy was removed.

J. P. Tuttle³ records a very interesting case. After carefully studying all the symptoms, he discussed the case at length with an experienced physician in New York, and after weighing the evidence *pro* and *con* they decided against ectopic gestation. The foetus was afterward delivered through the rectum.

E. W. Cushing⁴ mentions a case which had been operated on for an ill-defined tumor. The cyst was opened after the operation and a foetus was found. There had not been a suspicion of pregnancy.

Smith⁵ reports a case in which the patient died, and a post-mortem examination showed the right Fallopian tube distended into a sac, and containing a three months' embryo and placenta; the sac had ruptured, causing the death. He says, "In this case extra-uterine pregnancy was not suspected until I received the history of the symptoms immediately preceding death, nor can I see anything after reviewing the case which would have justified the diagnosis of tubal gestation. There was no attempt at abortion, no hæmorrhage, no pain referable to the uterus or tubes."

William T. Lusk⁶ recently operated on two patients, and found extra-uterine pregnancy. In either case, under ordinary circumstances, it would have been impossible to make a diagnosis. He has in the last few years changed his views very considerably on this subject, and he now believes "that the number of cases in which we can diagnose extra-uterine pregnancy in advance is really very small."

Dr. Joseph Price in a recent discussion before the Philadelphia Obstetrical Society stated that he had failed to make a diagnosis in four out of the last five cases of ectopic gestation he had operated on.

I could quote many other similar cases, but I have already produced sufficient for my purpose.

It is here interesting to note the mixed character of the trouble in a number of the cases. My second case was complicated by an ovarian cyst on the opposite side. The case of Dr. G. M. Tuttle had pyosalpinx on the side opposite to the pregnancy. Cases have been reported where there was an ovarian cyst on the same side. Medical literature is full of such mixed conditions.

The class of cases we have been considering form no small proportion of the total number of cases of ectopic gestation on record, and in all human probability the vast majority of such cases are unrecorded. To give some idea of the immense proportion of mistakes which have been made in diagnosis during even the past few years, let us

¹ Annals of Gynecology, February, 1889.

² Ibid., November, 1889, p. 87.

³ American Journal of Obstetrics, March, 1889, p. 259.

⁴ Journal of the American Medical Association, April 12, 1890.

¹ American Journal of Obstetrics, January, 1890.

² Ibid., January, 1890.

compare some approximate figures. It is fair to assume that the total number of cases of extra-uterine pregnancy in its early stages which have been put on record in the United States during this period does not much exceed two hundred, if it reaches this point. At the end of the year 1888, Hanks¹ tells us that there were in the previous three years ninety-seven cases of extra-uterine pregnancies of all stages reported in all the journals published in the English language. It is also fair to assume that there were very few cases in this period of time which were diagnosed and not recorded. Add fifty cases to cover this possible discrepancy and we have an approximate total of two hundred and fifty cases diagnosed during this period of time. Now compare these figures with those of the other side of the story. With merely a superficial glance over only a part of the literature, I have found some twenty cases recorded (a few of which I have quoted above). It must be remembered that this does not by any means represent all the mistakes which have occurred, as men will conceal their blunders in spite of anything which can be said. In addition to these, which in themselves form a formidable percentage of the total number diagnosed (20 as against 250, or 12½ per cent.), I have the word of the coroner's physician of Philadelphia, Dr. H. F. Formad, that he has in his possession the specimens from more than thirty women who died from rupture of an ectopic gestation-sac (and I myself have seen and studied many of the specimens). These cases had been under the care of one or more physicians, and yet none had been diagnosed, and a post-mortem examination by the coroner's physician was necessary in order to ascertain the cause of death, it being supposed in many of the cases that they had been the victims of foul play. No reasonable man will contend that such cases occur only in Philadelphia, and if we make a calculation on a population of fifty millions or more we have an approximate total in the United States during the past few years of about 1500 deaths from undiagnosed extra-uterine pregnancy. Of course these figures are only approximate, and it would take a great deal of time to verify them. However, they are sufficiently accurate to give a thinking man plenty to reflect upon, and must carry conviction to the minds of most. Now, in addition, take into consideration all those cases in which the disease has existed, but was overlooked, and those, again, in which the diagnosis was made, and the disease did not exist, and our chances for a correct diagnosis fade to a minimum. I do not wish to be understood as thinking that it is always impossible to make a correct diagnosis in the early

stages of extra-uterine pregnancy, because it has been accurately made, and I myself have made it, and verified the correctness of my diagnosis; the impression I wish to create is that in the great majority of cases the diagnosis can only be an approximate one, and when it is once made we are oftener likely to find ourselves mistaken than not. I think the evidence here produced more than sufficient to uphold that opinion.

THE USE OF ESSENTIAL OILS IN SURGERY.¹

BY CARL E. BLACK, M.D.,
OF JACKSONVILLE, ILL.

SINCE the germ-theory of the cause of sepsis and infection became generally accepted, the minds of surgeons, experimenters, and money-makers have been actively engaged in seeking new and more efficient antiseptics and disinfectants. An antiseptic to meet the needs of many cases must fill several requirements.

1. It must fully inhibit the growth of or destroy microorganisms.
2. It must not be very irritating, and must not destroy the tissues.
3. It must be convenient to prepare and carry.
4. It must have a diversity of application.

The wider the "range of value" the more desirable is the antiseptic, and a non-poisoning antiseptic is more desirable than a poisonous one.

Further, antiseptics may be either stimulating or sedative to the tissues to which they are applied. This makes it necessary for us to have at least two antiseptics for everyday use. As a sedative antiseptic there is probably none better than carbolic acid, although there are several objections to it; namely, it is a poison, will destroy tissue, has a disagreeable odor, and considerable caution must be exercised in its employment. For general use, antiseptics which are stimulating without being irritating are more desirable; and for this purpose it seems probable that our best agents will be found among the essential oils.

For comparison we will refer to two or three antiseptics which are in common use. The following are the results of some experiments made by Dr. G. V. Black, with cultures of microorganisms submitted to the action of drugs in solutions of known strength for definite periods of time. Carbolic acid was found effective in the proportion of 1:300, or in the proportion of from 1:8 to 1:15 of a five-per-cent. solution. That is, one part of pure carbolic acid to three hundred of the culture-medium in which the microbes were growing, inhibited their growth; or one part of a five-per-cent. solution of

¹ Transactions of the American Gynecological Society, 1888, p. 360.

¹ Read before the District Medical Society of Central Illinois, October 28, 1890.

carbolic acid to from eight to fifteen parts of the culture medium was equally effective.

A saturated solution of boric acid was found effective in the proportion of from 1:4 to 1:6.

Mercuric chloride was found effective in the proportion of from 1:25,000 to 1:50,000, or from 1:50 to 1:100 of a 1-to-500 solution.

Let us compare these figures with those obtained from similar experiments with the essential oils. Oil of cassia was found effective in the proportion of from 1:3000 to 1:5000, or from 1:2 to 1:8 of a saturated solution.

Oil of cinnamon was found effective in the proportion of from 1:2000 to 1:1 to 1:3 of a saturated solution.

Oil of cloves was found effective in the proportion of from 1:1100 to 1:1200, or in from 1:1 to 1:2 of a saturated solution.

Oil of mustard was found effective in the proportion of from 1:1000 to 1:1500, or from 1:1 to 1:2 of a saturated solution.

Oil of turpentine was found effective in the proportion of from 1:500 to 1:600, or in 1:1 of a saturated solution.

These experiments show mercuric chloride to be the most effective antiseptic, but its corrosive and poisonous qualities make it undesirable for general use. Both carbolic acid and boric acid are less effective than any of the essential oils named. Next in power to mercuric chloride is oil of cassia, made from the Chinese cassia bark. It is commonly sold as oil of cinnamon in our shops. One part of this oil to 4000 of the culture-medium was shown to be uniformly effective in inhibiting the growth of microbes. The Ceylon oil of cinnamon, made from the buds, is only about one-half as effective as that made from the Chinese bark. The other oils named are effective when used in larger proportions. One difficulty in the use of mercuric chloride is that it is not effective in the presence of albumin. All the albumin must be precipitated before the mercuric salt becomes active. Therefore in weak solutions its effects are uncertain, and in strong solutions its poisonous properties become dangerous.

The experiments with the essential oils were made about two years ago, and have recently been fully confirmed by the experiments of Dr. W. D. Miller, of Berlin, a member of the Imperial Board of Health of Germany.

It would consume too much time to give in detail the experiments, and the practical application of the results is more interesting. My experience has been almost exclusively confined to the oil of cassia, which was chosen because it was shown to be more effective and to have a wider "range of value" than any other of the oils, and, in fact, than any of the antiseptics in common use, excepting mercuric

chloride. A review of a few of the cases in which I have used it will be of interest.

For more than a year I have relied on a solution of oil of cassia, the aqua cinnamomi of the Pharmacopœia, for cleansing the hands, instruments, patient, etc., in all obstetrical procedures, and always with good results. The same solution was used in all cases in which a wound was made, and primary union invariably followed. In cases of suppuration or necrosis the solution seems especially useful. In the case of a large cancer of the breast, involving the axilla, in which sloughing had extended to such an extent that the closed hand could be placed in the abscess cavity, the cassia solution soon diminished the suppuration and sloughing, and reduced the septic fever. In this case it was also efficient in relieving the disagreeable odor which accompanies the breaking down of carcinomatous tissue.

Another case was that of a man suffering from locomotor ataxia, who severely injured his foot. A few weeks later the bones of the second phalangeal articulation of the little toe were found necrosed. All the dead bone was scraped away and the wound cleansed with the solution of the oil of cassia. Healing promptly occurred, which, considering the general condition of the patient, was surprising. In a boy ten years old, who had had an abscess of the tibia for eight weeks, several sinuses were incised and the whole cavity thoroughly curetted, and dressed with the oil of cassia solution. The wound healed rapidly.

A rectal abscess was treated in the same way and with equally good results.

In a patient with necrosis of one and three-fourths inches of the outer plate of the body of the inferior maxilla, three sinuses were opened, the necrosed bone was scraped away, and the cavity washed with an emulsion of oil of cassia. In this case the entire wound healed at once and without further formation of pus.

In several cases of herpes circinatus the disease promptly disappeared after being thoroughly rubbed two or three times with the pure oil of cassia.

As an antiseptic wash in many forms of chronic nasal and pharyngeal inflammation the cassia solution gave excellent results, and at the same time was agreeable to the patient.

For a number of years dentists have used what is known as the "1, 2, 3" mixture, as an antiseptic for cleansing cavities and pulp-chambers, and for the treatment of alveolar abscesses. This mixture contains one part of carbolic acid crystals, two parts of oil of cassia, and three parts of oil of wintergreen. It seems in the light of recent experiments and experience, that the oil of cassia is the most active ingredient of the mixture, and that the

same results, so far as antiseptics is concerned, would be obtained if it was used alone.

A number of physicians and surgeons have used oil of cassia with results similar to those I have reported, so that the proof of its effectiveness is complete. The late Dr. David Prince chiefly relied upon the oil of cassia as an antiseptic, and used it in all his later abdominal operations.

The oil will inhibit the growth of or will destroy microorganisms. In solutions of effective strength it is not irritating, and will not destroy tissue. It has a "wide range of value," being exceeded only by mercuric chloride in the absence of albumin. It is not poisonous unless considerable quantities of the pure oil are used. The solution is convenient to prepare and carry, and has an agreeable odor. It has a considerable diversity of application.

An emulsion of oil of cassia causes some smarting at the juncture of the mucous membrane and skin, and irritates the tissues of the eye. The pure oil rubbed on the skin twice a day causes marked redness and a few blisters will appear about the third day.

The most common form in which oil of cassia or any of the essential oils is used is a watery solution, prepared by placing enough of the oil in distilled water to form a saturated solution, or by making the aqua cinnamomi of the Pharmacopœia.

The emulsion may be made by beating up the desired quantity of the oil in water. For local application it may be used in any strength for one or two applications, but is liable to cause irritation if applied frequently.

The oil may be mixed with powdered boric acid and applied as a dry dressing, or it may be made into an ointment with vaseline. In nasal diseases a favorite application is the oil of cassia dissolved in fluid cosmoline and applied by means of an atomizer.

It seems to me that no other antiseptic offers us so wide a range of adaptability with so few objections as the oil of cassia. In special cases some other antiseptic may be more desirable, but for general use this has many points in its favor.

MEDICAL PROGRESS.

Treatment of Keloid.—M. VIDAL (*Annales de Dermatologie et de Syphilographie*) has observed that the cicatrices of scarifications made in keloids not only disappear rapidly, but that the keloid-tissue disappears with them. In recent growths one scarification may suffice, but the treatment of large growths must be continued for several months, and many patients are not willing to submit to the treatment for a sufficiently long time. If the treatment ceases when only a small nodule remains the growth will rapidly re-form; the scarifications must therefore be continued until the scar is everywhere soft and thin. The incisions should be made about one-fourth of an inch apart and "cross-hatched" either at

right angles or obliquely, and should penetrate through the keloid, but must not extend for more than one-fourth of an inch beyond its borders. Previously to operating Vidal produces local anæsthesia by means of liquefied chloride of methyl, painting the surface with this until congelation causes the skin to whiten. As soon as the color begins to return the chloride of methyl is again applied, experience having shown that successive applications cause the anæsthesia to penetrate more deeply. The scarifications may usually be made to the depth of three-eighths of an inch without pain.

The loss of blood is not great and is immediately stopped by the application of absorbent wool saturated with boric acid solution. On the following day the surface is dressed with diluted mercurial ointment.—*Practitioner*, November, 1890.

Treatment of Ringworm of the Scalp.—According to the *St. Louis Medical and Surgical Journal*, QUINQUAND has devised the following method of treating ringworm of the scalp:

The hair is cut very short and the circular areas covered with scales and spores are scraped. The scraping induces a slight superficial dermatitis, and should be repeated at intervals of from five to eight days. During the intervals between the scraping the following solution is continuously applied:

R.—Binioidide of mercury . . . 0.2 part.
Bichloride of mercury . . . 1 "
Alcohol 4 parts.
Water 25 " —M.

On the fifth day after scraping, the following ointment is applied to the entire scalp in order to reach all new foci of the disease:

R.—Chrysarobin }
Salicylic acid } of each . . . 2 parts.
Boric acid }
Vaseline 100 " —M.

After applying this ointment, the scalp is covered by a linen or rubber cap, held in place by means of Unna's zinc-glue. This is removed after forty-eight hours and the entire process is then repeated. In about a month epilation is practised and repeated, and the cure should be complete.

Errors in the Diagnosis of Infectious Diseases.—According to Russell, the following table derived from hospital statistics of Glasgow, shows the number of errors which have been made in regard to the diagnosis of contagious diseases:

Scarlet fever	508 cases	15 errors.
Measles	368 "	3 "
Whooping-cough	248 "	42 "
Typhoid fever	36 "	16 "
Typhus "	38 "	9 "
Diphtheria	64 "	2 "
Erysipelas	3 "	3 "
Puerperal fever	3 "	3 "

In other words, there were 7.6 errors for each 100 cases, and prompt diagnosis, important in order that isolation might be practised for the prevention of the spread of disease, was in this number of cases wanting.

THE MEDICAL NEWS.

A WEEKLY JOURNAL OF MEDICAL SCIENCE.

COMMUNICATIONS are invited from all parts of the world. Original articles contributed exclusively to THE MEDICAL NEWS will be liberally paid for upon publication. When necessary to elucidate the text, illustrations will be furnished without cost to the author.

Address the Editor: H. A. HARE, M.D.,
1004 WALNUT STREET,
PHILADELPHIA.

Subscription Price, including Postage.

PER ANNUM, IN ADVANCE \$4.00.

SINGLE COPIES 10 CENTS.

Subscriptions may begin at any date. The safest mode of remittance is by bank check or postal money order, drawn to the order of the undersigned. When neither is accessible, remittances may be made, at the risk of the publishers, by forwarding in registered letters.

Address, LEA BROTHERS & CO.,
Nos. 706 & 708 Sanson Street,
PHILADELPHIA.

SATURDAY, DECEMBER 20, 1890.

LATEST INFORMATION CONCERNING KOCH'S DISCOVERY.

ASIDE from the abstract of the paper of Sir Joseph Lister, which we print as a special cable dispatch, in the EXTRA attached to this number of THE NEWS, we are glad to be able to give our readers other information from American investigations and foreign journals concerning the progress of this remarkable discovery. (See extra and page 670.)

It is very evident, as time goes on, that Dr. Koch has acted wisely in refusing to divulge the character of the anti-tubercular liquid, and it now appears that the criticisms which have been made concerning the secrecy of its preparation were exceedingly unjust to the great bacteriologist.

On November 7th, in other words a week before Koch's paper appeared, the distinguished investigator had a long discussion with the Prussian Minister, Herr von Gossler, in the presence of two witnesses, in which he stated that it was his desire to publish everything in connection with his research, including the method of preparation of the fluid. From the explanation which Koch gave to the Minister, it became evident to this official that a description of the preparation of the drug could only be followed by disastrous effects, if those who were not skilled in its manufacture should attempt

to follow the directions given, for the method is so difficult in its details that it must either be seen or else be independently discovered by experiments, which, according to Koch's calculations, would take an experienced experimenter six months. For these reasons Herr von Gossler advised that this part of the discovery be kept a secret, and volunteered to take the responsibility of the information being withheld.

In his speech before the Prussian Diet von Gossler stated that in the present stage of organic chemistry the remedy cannot be analyzed with any degree of certainty, and that the method by which the remedy is obtained will probably render it applicable to other infectious diseases. He also stated that Koch himself lays special stress upon the chemical aspect of the subject.

The difficulties which exist in the manufacture of the remedy on a large scale are so great that the Prussian Government has been urged to put its authoritative stamp upon all of the liquid which was given out for experimentation in order to prevent fraud and to avoid the production of serious results by the use of impure material.

INFECTION FROM THE INTESTINAL CANAL.

It is very generally believed that failure to procure healing *per primam* of tissues not previously infected can invariably be attributed to carelessness on the part of the surgeon or his assistants. This is doubtless a satisfactory rule of thumb, since it is in the great majority of cases strictly true, and since its tendency is to make more careful those in whose practice secondary local complications occur after operation. It should be recognized, however, that this rule has its exceptions, since dogmatic assertions to the contrary might not only cast undeserved reproach upon the most careful surgeons, but might even subject them to action at law to recover damages for a sequel to operation entirely beyond their control.

It is well known, for instance, that pathogenic microbes may gain access to the circulation by means other than those offered by the instruments of the operator, and may cause characteristic local effects in spite of rigid and successful antiseptics. Indeed, this has been so frequently observed in trauma not accompanied by surface-loss of continuity that the possibility of its occurrence in the operating-room must be admitted.

In addition to infection by the well-recognized

pyogenic microbes, it now seems probable that the bacterium coli commune may, exceptionally, play an important part in interfering with the healing of wounds. The possibility of wound-infection by microorganisms gaining access to the circulation by means of the intestines has long been maintained, especially by those interested in abdominal surgery. It is very generally admitted that in ulcerative conditions of the mucous membrane of the alimentary canal systemic infection may occur. But when the intestines are healthy, or subject to no greater alteration than that accompanying moderate catarrhal inflammation, proof has been wanting as to the possibility of harmful germs penetrating into the lymph- or blood-channels.

In this relation the communication of TAVEL (*Correspondenzblatt für Schweizer Aerzt.*) is most important. He calls attention to a former paper in which he demonstrated the intestinal origin of two cases of acute goitrous inflammation. In both were discovered pure cultures of a gas-forming bacterium very similar to one found in the large intestines. The chain of evidence was incomplete, however, since he was not able to obtain the identical microorganism from the alvine evacuations.

Kocher many years ago expressed the opinion that inflammation in goitres was frequently secondary to an enteritis, but this has remained without positive proof till the present communication by Tavel. The chain of evidence in his last reported case seems complete. In January, 1890, Kocher operated upon a goitre containing two large cysts. One was enucleated—this was accompanied by much bleeding, checked only by sponge-packing; the other was enucleo-resected. The wound was drained, closed, and dressed with sublimate gauze. The following day the drainage-tube was removed. Gelatin into which portions of the tube were dropped remained sterile for several weeks; then a small colony of cocci, commonly found on tubes which have remained in contact with the skin, developed. These cocci were obtained from nearly all wounds which united by first intention. Healing took place rapidly. Eight days after operation, the wound having in the meantime completely closed, redness about the cicatrix and fluctuation were observed. Hæmatoma was suspected; an incision was made, and a brownish, bloody fluid, containing no clots, escaped. Microscopical examination was not made, but cultures showed an abundant growth of a short bacillus which proved to be the bacterium coli commune.

The cavity from which this liquid escaped was found to have grayish necrotic walls. No pus was discharged at any time. As healing was exceedingly slow, the curette was freely used. During this manipulation another cavity was opened and was found to contain a fragment of sponge. This cavity corresponded to the enucleated cyst. Small fragments of the portion of sponge showed that the latter was absolutely sterile. The proof that the bacillus observed in the completely-cicatrized wound was of intestinal origin would seem to rest upon the fact that the drainage-tube, when removed, was found to be practically sterile, that the piece of sponge removed from another portion of the field of operation was still sterile although it had remained in the tissues for a month; hence that infection had taken place after complete closure of the wound, consequently from within and not from without. A further indication of the origin of this infection rests upon the circumstance that nutritive enemata were required for a few days after the operation and that they had to be discontinued on account of a foetid diarrhoea which seemed to be caused by them. On account of the very large loss of blood during the operation intravenous saline injections were practised in this case, and it might possibly be claimed that in this way the bacillus entered the circulation. The drainage-tube was not removed, however, for twelve hours after these injections had been made, hence had they been the direct cause of infection the presence of the bacterium would probably have been shown in the cultures from the drain.

Still another case of local infection of intestinal origin, though not following operation, is reported by Nicaise. In this case the patient suffered from a subacute cervical adenitis, which upon incision discharged a peculiar form of muco-pus. The author considers that the intestinal origin of this local trouble is exceedingly probable, from the fact that no cause could be found about the throat, head, or upper extremity, and that the patient was at the time suffering from a severe enteritis. It must be admitted that proof in this case is entirely wanting. It would also seem to be especially unlikely that, even were the general system affected, the local manifestation would appear in the neck.

Troisier, however, has shown that there exists some definite relation between the viscera and the cervical lymphatic glands, since enlargement of the latter is so common in cases of intra-abdominal

malignant disease that it is at times of diagnostic importance.

Whether or not the cases of local infection recently reported have really depended upon pathological conditions of the intestines, the fact remains that microbes can readily traverse intestinal walls which are in an abnormal condition. This would point to the very great importance of carefully attending to the condition of the alimentary canal, not only in abdominal surgery, but in all severe operations on any part of the body; and it would seem unwise to practise surgical intervention, save in cases of urgent necessity, upon those suffering from obvious intestinal disorders.

SPECIAL ARTICLE.

REPORT OF THREE CASES TREATED BY KOCH'S LYMPH.

BY WILLIAM H. BENNETT, M.D.,
OF PHILADELPHIA.

THE following records of cases treated with Koch lymph are, with one exception, incomplete, because the patients are still under treatment; and though they are of no value in indicating its curative effect, they are published at this time because of the great interest felt in every experiment made with the lymph.

The records will be completed in future numbers of THE MEDICAL NEWS, if the amount of lymph at my disposal proves sufficient. The specimen of it employed was obtained in such a way that it could not possibly have been diluted before reaching me, and it still retains its perfect transparency. It will, however, be seen that somewhat larger doses were required to produce the effects than those stated by Koch, and it is likely that the lymph slightly deteriorates either from age, or on its voyage across the Atlantic.

The first case well illustrates its value in diagnosis:

Mrs. C., a lady of seventy-nine years, weakened by age, a chronic intestinal catarrh, and a malignant disease of the face, was the first in Philadelphia to receive an injection.

The disease of the face had been pronounced lupus by a distinguished microscopist to whom had been submitted a portion of tissue removed last May. Although there was some doubt as to the correctness of this diagnosis, it was decided to test the question by an injection of the lymph.

The disease has existed for more than twelve years, but it has made very little progress until within the past eight months. During the latter period six operations have been performed by Professors Agnew and Ashhurst, with a view to check its inroads. It

consists of an ulcer of irregular quadrilateral form, extending from a little to the right of the median line of the nose one and a half inches to the left, and from the lower edge of the nose nearly to the eyebrow. There is a hard, hemispherical nodule, half an inch in diameter, involving the inner half of the lower eyelid, and a similar smaller one on the inner edge of the upper lid. The flat surface of the hemisphere in each case forms part of the quadrilateral ulcer. The principal activity of the disease is in these nodules. The floor of the ulcer is covered with granulations showing no tendency to cicatrize. The right-hand border has on it a few warty papillæ, and from it extend, here and there, into the sound tissue, grayish lines, indicative of the invasion of the disease into other regions.

At 5.30 P.M., December 10, 1890, in the presence of Professors Agnew and Ashhurst, I injected between the shoulder-blades 0.002 c.cm. of lymph which had just been diluted with boiled distilled water. There was only the ordinary pain of a hypodermic injection. The following is a record of the pulse and temperature:

Time.	Pulse.	Temperature
P. M.		
5.45	80	98.4°
6.15	76	98.4
6.45	76	98.4
7.15	75	97.
7.45	72	97.6
8.15	74	97.6
8.45	78	97.6
9.15	—	97.6
9.45	—	97.6
10.45	—	97.8
11.45	78	97.8
A. M.		
2.15	—	97.8
8.45	91	98.4

There has not been at any time a change in the appearance of the ulcer, except that, in consequence of the removal of all dressing and exposure to air, it becomes dryer and darker. The site of the injection could not be discovered at 6.45 P. M. It had become slightly red and tender by 8.45 A. M., December 11th. The patient at that time seemed in better condition than before the injection.

At 9.30 A. M., December 11th, a second injection was given, consisting of 0.005 of lymph. The following is the record of pulse and temperature:

Time	Pulse.	Temperature.
A. M.		
10.00	80	98.4°
10.30	87	99
11.00	87	99.1
11.30	87	98.4
12.00	84	98.8
P. M.		
1.00	76	98
2.00	94	99
3.00	100	98.8
5.30	90	99
9.00	94	99.4
10.00	93	100
12.00	79	99.6
A. M.		
9.00	91	99.6

By 2 P. M., December 11th, the site of the first injection had become quite red over an area of one and a half inches in diameter, and two lymphatic glands near the shoulder were enlarged and tender. The second injection produced some disturbance of the system, shown by a rise of temperature to 100° and a general feeling of malaise. The ulcer was in no way affected, and there were no other symptoms worthy of note.

A third injection of 0.01 c.cm. of the lymph, freshly diluted, was given at 12.30 P. M., December 13th, the temperature at that time being normal. The following record was made:

	Time. P. M.	Pulse.	Temperature.
Dec. 12th.	1.30	88	99°
	2.30	89	99.2
	3.30	91	99.2
	4.45	82	99.4
	6.00	83	99.2
	8.15	93	99.4
	10.00	91	98.3
A. M.			
Dec. 13th.	9.00	90	99.4

The effect of this injection upon the system was hardly appreciable, and again the sore showed no change.

The following note was made of the condition of the sites of the injections, December 13th:

No. 1. The redness is fading, and the enlarged glands are growing smaller and less painful.

Nos. 2 and 3 are each slightly red and tender, but no more glands have become enlarged.

December 15th, at noon, a fourth injection was given of 0.02 c.cm. of lymph—a large amount for so feeble a person. The following record was made of the result:

	Time. P. M.	Pulse	Temperature.	Notes
	1.00	72	94.8°	
	2.00	77	98.4	
	3.00	77	98.4	
	4.00	90	98.8	
	5.00	91	99	
	6.00	100	100	Slight chill.
	6.30	112	100.8	
	7.10	123	101	
	7.40	110	102	
	8.15	106	102	
	8.45	110	102	
	9.15	110	102.2	
	9.45	105	102.2	
	10.30	110	102.2	
Dec. 16th.	11.00	110	101.4	
	12.00	113	102	
	A. M.			
	1.00	107	102	
	2.00	100	100	
	10.00	97	98.8	

It will be seen by the above record that there was at this time a decided reaction. The patient complained at 1 P. M., one hour after the injection, of a sudden momentary buzzing in the ears and a feeling as if about to faint. With the slight chill there was a sensation of pulsation in the back of the head

and shoulders. At 7.30 P. M. the respiration became somewhat irregular, and there was a constant effort to clear the throat by coughing. There was at no time actual nausea, but she was "afraid to eat lest it should come on." Between nine and ten she became for a time very restless, and complained of pains in the limbs. She passed an uncomfortable night, having but little sleep. December 16th, she felt better, but weak. The wound did not change at all in appearance, and since the first injection the disease has apparently spread with at least as great rapidity as ever before. It is evidently not lupus.

The second patient treated was a woman of twenty years, suffering from tuberculosis of the lungs. The case is one of a year's duration, with a typical history of heredity, cough, hæmoptysis, hectic, and loss of flesh. A moderate-sized cavity exists in the apex of the left lung, and the sputa are loaded with tubercle bacilli.

December 12th, at 3.10 P. M., I injected between the shoulder-blades 0.005 c.cm. of Koch's lymph. The following is the record made of the pulse, respiration, and temperature:

Time. P. M.	Pulse.	Temperature.	Respiration.
3.10	134	99.8°	25
3.30	126	101.4	24
4.00	126	101.2	29
4.30	122	101.1	30
5.00	120	101.1	28
5.30	114	101.1	28
6.00	120	101.1	26
6.30	126	101.2	26
7.00	124	101.3	26
8.00	120	101.2	25
9.00	120	101.0	24
10.00	118	100.8	24

No record could be taken after 10 P. M., but the patient continued feverish until 3 A. M. In this case there was no decided chill. With the fever there was for a short time slight delirium. The cough was increased, and became very troublesome during the night. There was some nausea. There were pains throughout the body, but especially in the arms and legs, which continued with gradually-decreasing intensity for twenty-four hours. There was no perceptible effect upon the bowels, skin, or kidneys. The morning after the injection the appetite was as good as usual, and with the exception of increased weakness and the lingering pains, the patient was in no way the worse for the injection. The reaction in this instance was characteristic but slight, most of the rise of temperature being due to the daily hectic.

December 14th, at 2.20 P. M., I gave the patient a second injection, consisting of 0.01 c.cm. of lymph, with the following result:

Time. P. M.	Pulse.	Temperature.	Respiration.
3.00	120	100.8°	24
3.30	116	100.8	30
4.00	118	100.4	26
4.30	120	100.6	28
5.00	120	100.2	24

Time. P.M.	Pulse.	Temperature.	Respiration.
5.30	115	100.2°	28
6.00	114	100	28
6.30	118	100	30
7.00	120	100	30
7.30	120	100.8	30
8.00	112	101.4	26
8.30	120	102.5	28
9.00	130	104	28
9.30	135	105.2	26
10.00	135	104.8	30
10.30	112	105	28
11.00	108	105.1	28

There was nothing of importance to note until seven o'clock, when the patient vomited a little mucus slightly tinged with blood. At 8 P.M. the cough was increased, but was accompanied with very little expectoration. At 8.30 P.M. she complained of slight chilliness of the body, and the hands, which were previously warm, became cool. At 9 they were cold, and the patient still complained of chilliness of the body. At 9.30 this latter sensation had passed away, but the hands were still cool. During a hard coughing spell a little mucus was raised, which contained no blood. A slight pain, lasting a minute or two, was felt in the left chest on rising. At 10 P.M. there was slight pain in the lower part of the back and in the back of the thighs. The patient became somewhat delirious. The cough decreased. At 10.30 there was slight supra-orbital and occipital pain. After 11 P.M. no record could be taken, but the fever gradually abated toward morning, and the next day, December 15th, the patient complained only of weakness. At 2.30 P.M. her pulse was 120, and temperature 99.8°. The following note was made on December 16th: "Since the last injection the patient feels better, and her cough and expectoration are decidedly diminished."

Arrangements will be made for more injections during the ensuing week.

The third case which I have to report is that of a boy five years of age, who was admitted to St. Christopher's Hospital for Children nine months ago with incipient disease of the left hip-joint. His mother died of tuberculosis of the lungs and his sister of Pott's disease.

A periartritic abscess formed during the past fall, which was opened November 8th by Dr. Simes, the attending surgeon. After discharging freely for three weeks it remained closed for one week, and then about a week ago commenced to discharge again.

At 4 P.M., December 13th, in the presence of Dr. D. D. Stewart and myself, Dr. Simes injected, in the usual place, 0.005 of Koch's lymph. The following record was made of his temperature and pulse.

Time. P.M.	Pulse.	Temperature.
4.00	88	98.8°
4.30	112	99.2
5.00	104	99.3
5.30	100	98.8
6.00	92	98.4
6.30	92	98.4

Time. P.M.	Pulse.	Temperature.
7.00	100	98.2°
7.30	104	98.
8.00	99	98.4
8.30	92	98.4
9.00	100	98.4
9.30	108	98.6
10.00	114	98.8
11.00	116	100.
A.M.		
6.00	130	102.
7.00	130	102.
8.00	144	102.4
9.00	140	102.
10.00	130	102.
11.00	144	102.
12.00	132	101.8
P.M.		
12.30	140	101.6
1.30	136	
3.30	144	101.6
4.30	132	101.9
5.30	132	101.8
6.30	124	
8.00	112	101.6
10.00	116	101.6
A.M.		
6.30	112	99.

The injection was followed very quickly by a slight flushing of the face and an irregularity of the pulse. This irregularity of the pulse was a marked symptom during the whole period of high temperature, and it was also quite marked when, at 6 P.M., the temperature was normal. It disappeared as the child recovered from the injection. The child is free from heart trouble.

There were no other symptoms to note until 9.30 P.M. The child then complained of stiffness and a "sore feeling" in the diseased joint, but not of any pain in the right leg. At ten the joint was slightly swollen and inflamed. At eleven there was a well-marked red ring half an inch broad around the opening of the abscess. Later, the redness extended over the joint, and it became so sensitive that the child feared to have any one touch it. The discharge was slightly tinged with blood. The temperature was not taken during the night, but the child was very restless and feverish, constantly asking for water. At 6.30 the following day he vomited. During that forenoon his face was slightly flushed, his eyes injected, and he complained of headache. He slept much of the time, keeping his eyes partly open. His appetite had failed, his tongue had a brownish coat in the centre and was a strawberried along the edges. The urine contained no albumin; it was very turbid on the day following the injection, but quite clear the next day. December 15th, the child was still pale, but he had regained much of his usual animation. The red ring around the opening had become very narrow, and the heat about the joint and its unusual sensitiveness had disappeared.

This case is one of special interest, and further injections will be made and reported as soon as

arrangements can be made for continuous and more careful observations.

It will be seen that the symptoms in the foregoing cases corresponded with those described by Koch as developing under similar circumstances, but how far the treatment in the last two will prove curative can only be determined by further injections.

I am indebted to Drs. McCamy and Lawrence, and to medical students Bennett, Woodward, and Van Dyke, for assistance in making the foregoing records.

**INOCULATION OF KOCH'S LYMPH AT THE
HOSPITAL FOR THE RUPTURED AND
CRIPPLED, NEW YORK.¹**

Preliminary Report.

BY ALLAN McLANE HAMILTON, M.D.,
NEUROLOGIST,

AND

VIRGIL P. GIBNEY, M.D.,
SURGEON-IN-CHIEF.

REMARKS BY DR. GIBNEY.—On Tuesday morning, December 9th, Dr. Hamilton notified me that he had a small vial of Koch's lymph and would like to employ it in a case of tubercular meningitis. I replied at once that we unfortunately had no such case at present in hospital, but had any number of cases of bone tuberculosis, and would be glad to have him call in the afternoon to make such experiments as he desired.

CASE I.—At 5.30 P.M., in the presence of two members of the consulting staff, Drs. J. H. Ripley and L. E. Holt, Dr. W. R. Townsend, Assistant Surgeon, Dr. George DeF. Smith, and the members of the house staff, the first inoculation in a public institution in this city was made upon a boy, ten years of age, who had been under treatment in the hospital for several years for tubercular osteitis of the right hip. This case was selected because his general health was good, because the sinuses had closed, and because it was believed that a cure was complete. Dr. Ripley examined his lungs with negative results. His pulse was 76, respiration 20, and temperature 98.4°. The syringe had been previously sterilized and 2 minims of the solution, of the strength of 1 mgm. to 5 minims, were injected in the interscapular space by Dr. Hamilton. At 6.45 P.M. his pulse was 80, respiration 20, temperature 98.3°. At 7.45 P.M. pulse 76, respiration 20, temperature 98.1°. At 8.45 and 9.45 the vital signs were practically the same. At 10.45 his pulse was 72, respiration 19, and temperature 99°. There was no rise of temperature beyond this. He slept well during the night and kept his bed during the following day, Wednesday. He complained of a little soreness about the puncture and there was a slight area

of redness, but beyond this there was nothing that could be construed as reaction. At 6 P.M., December 10th, 5 minims of the same solution were injected, and up to the present writing there has been no reaction.

CASE II.—A member of the house staff was selected as a healthy subject, lungs examined by Dr. Ripley with negative result, and 5 minims were injected in the interscapular space. Careful records were kept during the evening without any positive result. In the morning the doctor reported that he experienced no change whatever, save a little accentuation of pain around some scratches on his hands, produced by plaster work.

CASE III.—December 10th, boy, aged twelve years, typically tuberculous in appearance, in hospital since May, 1889. Excision of the knee for tubercular disease had been performed last spring. A large portion of bone had been removed, but sinuses remained and these had been treated with the peroxide of hydrogen. In addition to the sinuses, an ulcer, supposed to be tuberculous, existed on the posterior aspect of the thigh. This case also was selected in the hope that the process had been arrested. Dr. John S. Thatcher examined his lungs with negative results. Injection of 5 minims at 6.20. A careful record was made every hour preceding and subsequent to the inoculation, from 5 P.M. to 12 midnight. There was no elevation of temperature whatever. This morning, December 11th, the boy reports himself as feeling quite well; complained during the night of pain in his back, which pain prevented him from sleeping; beyond this, no reaction.

CASE IV.—December 10th, girl, seven years of age; under treatment since May 23, 1890, for dorsal Pott's disease with an abscess about the right hip. This had been opened and treated after Billroth's method. For the past week she has been out of health, had a decidedly "strumous" appearance, and, for the past day or two, has suffered from a phlyctenular conjunctivitis. Her lips were large and flabby and eyes heavy. Dr. Thatcher examined the lungs, pronouncing them healthy. At 6.25 P.M. 3 minims of the same solution were injected, the usual records having been made. At 11 o'clock in the evening, the night nurse reported that the child was suffering from "snuffles," was breathing heavily, and was not resting well. The vital signs, however, showed no change. This morning, December 11th, she is resting comfortably, her vital signs are normal, and she does not complain of any pain about the site of puncture.

Report of Dr. Allan McLane Hamilton.

To the Editor of THE MEDICAL NEWS,

SIR: On Monday, December 8, 1890, I received from Dr. H. Holbrook Curtis, of this city, about four grammes of diluted Koch's lymph, every five minims of which contained one milligramme of the lymph. The attenuation was made on the previous day with sterilized water, by Dr. Curtis himself. Through an unfortunate accident one-half of this solution was lost upon the afternoon of Tuesday the

¹ This report was received from Dr. Hamilton on Friday, December 12th, too late for insertion in the issue of THE MEDICAL NEWS for December 13th.

9th, when I made my first two injections, at the Hospital for Ruptured and Crippled, in the presence of Drs. Gibney, Townsend, J. H. Ripley, L. Emmett Holt, George DeForest Smith, and the house staff. Two more patients were injected on Wednesday, in the presence of several of these gentlemen, as well as Dr. Thatcher. These cases are fully reported elsewhere,¹ and I will not refer to them except to say that the reactions were either absent or trifling, and that one of the cases was non-tuberculous and another convalescing. From the fact that other medical men have had decided results with Koch's lymph injected by them, and that Dr. Curtis himself has materially influenced the course of the disease by injections of the same lymph used by me, I am compelled to believe that the barren results from its use in my hands were due either to the smallness of the dose used (2 mgm. to 5 mgm.) or possibly to the fact that the diluted lymph had undergone decomposition. I, however, hope to make other injections toward the end of the week, employing the same patients; when I will forward you my further experiences.

Very truly yours,

ALLAN McLANE HAMILTON, M.D.

New York, December 15, 1890

CORRESPONDENCE.

CHICAGO.

To the Editor of THE MEDICAL NEWS,

SIR: A new specialty in medicine has apparently been created in Chicago. A certain so-called doctor advertises himself as "the successful obesity specialist; patients treated by mail; no starving, no inconvenience; harmless, and no bad effects." We are informed that this man has a lucrative practice, and that as might be supposed a large proportion of his patients are Germans.

At a recent clinic at the College of Physicians and Surgeons Professor A. Reeves Jackson showed a case of laceration of the cervix, and in commenting upon these injuries said that their pathological importance frequently, though not always, depends upon the degree of eversion which accompanies them. In this case there was no eversion unless the parts were pulled upon and thus separated. The "out-rolling" of the cervical lining is most marked in cases in which the laceration is bilateral, and extends beyond what might be called the crown of the cervix. In such cases it is not unusual to find the internal os at the very lowest portion of the everted tissues. These extreme cases can be cured by plastic operations only. Dr. Jackson regards all cervical lacerations as inviting the development of malignant disease, and when a woman has a cervical tear and is approaching the menopause she should be taught to watch carefully for such symptoms as hæmorrhage, leucorrhœa, or

pelvic pain, for any of these may signify incipient cancer and indicate the necessity for prompt treatment.

Professor Jackson then put the question, "What should be done in the way of treatment in this case?" and added that when Emmet taught us the frequency of this lesion, and the admirable method by which the injury might be repaired, and its effects consequently removed, almost the entire profession agreed with him. Every physician who could do so operated upon every torn cervix when permission could be obtained. But a change has come. The pendulum swung too far in one direction and it is now likely to swing too far in the other. Dr. Jackson believes that the operation is needed particularly in cases in which there is great eversion. We can in some cases effect a cure by local treatment, but even in these if by a procedure of from fifteen to thirty minutes we can in one or two weeks accomplish what would otherwise require many months, the operation should be done. In the case before the class he did not think that an operation would be necessary, and he therefore applied Churchill's tincture of iodine to the interior of the cervix and to the eroded surfaces. This, or carbolic acid, or the two combined, should be applied to the unhealed surface once a week. Between the applications the cervix should be sustained by a vaginal tampon of absorbent wool or cotton, saturated with boric acid and glycerin, and changed every two days. If, however, at the end of a month's treatment, and after involution is complete, the condition is not improved, an operation should be performed.

Dr. G. Frank Lydston recently had an interesting case of non-gonorrhœal double epididymitis. Double epididymitis, as is well known, is rare, and double epididymitis of non-gonorrhœal origin is especially rare.

The patient gave a history of a slight stricture following an attack of gonorrhœa six years ago. This was treated successfully, but since then he has been subject to prostatic irritation, and occasionally suffered from urinary obstruction apparently due to spasmodic stricture. He stated that he had been examined by several surgeons who informed him that his stricture was very slight, but that the prostate was exquisitely tender, a fact which he himself keenly realized when a bougie was introduced. Since the original gonorrhœa there has been no discharge whatever. The patient had been subject to slight muscular rheumatism, and four days before coming under Dr. Lydston's observation he was attacked by what was apparently severe lumbago. On the second day of this attack the right testicle became painful and swollen. On the third day the inflammation of the right testicle subsided somewhat and the left became enormously swollen and acutely painful. Under appropriate treatment the swelling of the left testicle subsided within forty-eight hours, and on the following morning the patient was very comfortable. In the evening, however, the right testicle again became swollen, and it was necessary to give opiates quite freely in order to relieve the pain. The peculiar feature of the case is the fact that a decided decrease followed by a rapid increase in the size of the inflamed organs occasionally occurs within a very few hours. The body of each testicle has become secondarily inflamed.

Dr. Lydston believes the case to be one of rheumatic orchitis and epididymitis, but that there is in all proba-

¹ See page 673 this issue.

bility some predisposing cause in the deep urethra. He thinks that rheumatic inflammation of the testicle is much more frequent than is generally believed.

Dr. T. Melville Hardie recently contributed a paper to the Chicago Medical Society on the "Local Treatment of Laryngeal Tuberculosis." The paper was largely a review of the work done in laryngeal tuberculosis by Heryng, of Warsaw, and Krause, of Berlin. The frequency of laryngeal involvement in pulmonary consumption, the existence of primary laryngeal tuberculosis, and the occurrence of frequent cicatrization under treatment were adduced as reasons for departing from the customary therapeutic nihilism. Case-histories were read which showed that at least a partial cure is possible, and that the troublesome subjective symptoms, dysphagia, difficulty in breathing, and hoarseness, can be removed or greatly alleviated. The points requiring attention in the lactic-acid treatment were mentioned and a discussion of the rationale and of the surgical methods employed in the treatment of laryngeal tuberculosis followed. It was insisted upon that the introduction of *curettement* marked an epoch in the treatment of the disease, as it is based upon the conclusions arrived at by modern general surgery with regard to the treatment of tubercular joints. The technical difficulties in the way of the effective accomplishment are not to be urged to its discredit. It is not work for a beginner. Besides *curettement* and treatment by endolaryngeal incision, tracheotomy and electrolysis were briefly discussed. The writer had had no experience with electrolysis.

LONDON.

The Medical Schools—The London Post-graduate Course—Dr. Sharkey on Graefe's Lid-sign—Fatal Obstruction of a Bronchus in an Infant.

THE number of new men in the London medical schools is almost exactly the same as that of last year, but less than that of the preceding two or three years; but those of us who think the profession is already overcrowded will not find any cause for regret in this fact. Of course, St. Bartholomew's Hospital takes the lead, as it has for many years past, and Guy's has resumed its old place as next to the largest school, a position which has been stoutly contested by St. Thomas's in recent years. The new dental school at Guy's is becoming known, and this year quite a number of "dentals" have entered there, but without affecting the number that enter elsewhere; so I suppose the dental profession also will become overcrowded.

I hear, on good authority, that the London post-graduate course is in a flourishing state, and that the number of names enrolled for the third and concluding series of lectures and demonstrations is equal to that of the two previous series together. This would seem to show that the medical public is awakening to the great advantages which the course offers. I am told that the Government departments are looking upon it with favor, and granting leave of absence to officers in the army and navy who wish to "brush up" by attending the course. Several naval officers have entered, and there

are rumors of a considerable accession of numbers from the same quarter in the course of a few weeks. For some reason, I suppose because it is not yet sufficiently widely known, but very few foreign practitioners have joined, three Canadians and one American representing the total of those who do not hail from the British Isles. An editorial in your journal, August 30th, on the subject of the advantages presented by London as a medical centre was read here with much interest and approval, and probably its effects will soon be shown by the number of men who will stop here instead of hurrying on to Vienna or Berlin.

Dr. Sharkey recently read an interesting paper on Graefe's "lid-sign" before the Ophthalmological Society. This sign consists, as is well known, in the non-descent, or, rather, the imperfect descent, of the upper eyelid when a patient suffering from Graves's disease looks downward. That it is not a constant symptom every physician will admit, but Dr. Sharkey has gone further than this, and shows that it is present in a not inconsiderable number of persons who are not the subjects of Graves's disease at all, and that, therefore, it has not the pathognomonic significance which has hitherto been accorded to it. His reasoning on the cause of the phenomenon was so good that I need make no apology for quoting it: "It is clear," he said, "that there is overaction of the muscles which raise the lid, namely, the levator palpebræ, supplied by the third nerve, and the unstriped muscle of the lid, supplied by the sympathetic. Remak showed that irritation of the sympathetic produced elevation and retraction of the upper lid; and the fact that one can voluntarily produce this, shows that it can likewise be effected through the third nerve. Constant active spasm rarely results from irritation, though intermittent spasm may. Prolonged spasm most frequently owes its origin to paralysis or weakening of opposing muscles. Is there evidence in Graves's disease of a weakening of the muscles which close the eyes? Stellwag has shown that a very constant symptom of the disease is diminished frequency and incompleteness of the involuntary closure of the eyes, which goes on so continuously in health. The orbicularis palpebrarum which effects this movement and is the opponent of the muscles which raise the lid, being weakened in Graves's disease and losing tone by inaction, the healthy equilibrium of the muscles of the eye is lost, the opening overpowering the closing muscles and producing retraction of the upper lid and Graefe's sign. Thus the infrequency of winking, which Stellwag refers to disease of the nerve-centres, is the primary result of disease, and retraction of the lids and Graefe's sign follow as a consequence."

At the first meeting of the Clinical Society, Mr. R. W. Parker reported a very interesting case and a somewhat unusual form of disease. His patient was an infant, one year old, who was suddenly seized with very urgent dyspnoea, and as the obstruction to respiration was evidently below the larynx, she was naturally assumed to have aspirated a foreign body into the air-passages. Tracheotomy was performed and efforts were made to promote the expulsion of the foreign body, but without success, and the infant died soon afterward. On post-mortem examination it was found that the entrance to one bronchus was completely occluded by a caseous gland, which

had ulcerated through the trachea and sloughed into the trachea. Of course, it is common for caseous glands to become adherent to the trachea, and they not infrequently lead to ulceration; but when perforation has been accomplished the contents of the gland are generally poured into the trachea in a fluid state, and set up a gangrenous pneumonia. The sloughing of the whole gland, such as took place in this case, must be very rare, and the extremely early age at which it occurred is also another point of interest.

Dr. Andrew, the Harveian Orator of the College of Physicians this year, in the course of this address, spoke of the enormous amount of so-called medical literature as the chief of the ills which beset the physician of the present day, and said that this evil would be less prominent if writers paid more attention to the teachings of Harvey, from whom he quoted the following passage in support of his belief: "I had no purpose to swell this treatise into a large volume by quoting the names and writings of anatomists, or to make a parade of the strength of my memory, of the extent of my reading, and of the amount of my pains; because I profess both to learn and teach anatomy, not from books, but from dissections; not from the positions of philosophers, but from the fabric of Nature. I avow myself the partisan of truth alone; and I can, indeed, say that I have used all my endeavors and bestowed all my pains on an attempt to produce something that should be agreeable to the good, profitable to the learned, and useful to letters." It would, indeed, be well if all writers since his day had laid Harvey's precepts to heart and endeavored to act upon them.

NEWS ITEMS.

Opinions of Foreign Journals.—The following excellent summary of the opinions expressed by French and German journals as to Koch's treatment of tuberculosis is taken from the London *Lancet*, December 6, 1890:

In France the reception of Professor Koch's discovery by the medical press has been fairly cordial. Some journals, as the *Gazette Médicale de Paris* and the *Progrès Médical*, are content with giving abstracts of the recently published reports from Berlin, the last-named expressing surprise at the moderate and somewhat vague terms in which the action of the remedy is now being spoken of, compared with the more enthusiastic language first used. *L'Union Médicale* (November 27th, 29th, and December 2d) has followed carefully the progress of events. It points out that more caution is being used in the employment of the remedy, especially in view of its liability to induce acute pulmonary oedema in lung tuberculosis, or oedema of the brain in meningeal cases, or of the glottis in laryngeal disease. Surgical cases are more amenable to treatment because of the readiness with which the diseased parts can be completely extirpated after the remedy has exerted its necrotizing effect. It refers to von Ziemssen's opinion that lung cases will require prolonged treatment. M. Villoret, writing from Berlin to the *Semaine Médicale*, insists on there being a certain idiosyncrasy in the manner in which the injections are borne, and cites three cases treated by the same dose, in one of which a typical reaction took place after fifteen hours, in the second an "atypical" one after three hours, and in the third a weak but typical reaction after ten

hours. *L'Union Médicale* thinks that we are still much in the dark, and points to the fact that relapses have already occurred in lupus-cases and that it is an error to believe that we are at all near proofs of its real therapeutic efficacy. At the Laennec Hospital on November 30th, MM. Cornil and Chantemesse inoculated six patients—two being cases of lupus, two of early pulmonary tuberculosis, and two of surgical tubercular affections. In one of the lupus-cases, a man of eighteen years, 0.002 c.cm. was injected, and reaction began five hours after, the temperature reaching its maximum in twelve hours (39.2° C. from 37.2°). The appearances were precisely similar to those described by all who have tried the remedy in lupus.

There was equally marked reaction (maximum temperature 39.4° C.) in a case of early phthisis, with headache and nausea, and slight auscultatory changes attributed to congestion. M. Pean on the 29th inoculated several cases at the St. Louis Hospital. He expressed the opinion that Koch was justified in withholding the nature of the remedy at present, and insisted on the danger of incautious administration. Dr. Moreau, of Algiers, asserts that in some well-marked tubercular cases no reaction has followed injection, and that in some non-tubercular subjects reaction has been observed. In one case of Leyden's the fever set up by the injections continued after these were discontinued. *La Province Médicale* (Nov. 29th) thinks that enthusiasm is giving way to uncertainty, and avers that in pulmonary cases its action is very limited, and that, although it may cause diminution in expectoration of bacilli and in night-sweats, its use is not followed by any gain in weight or strength. Much is required to be known concerning the length of time that such cases have to be treated. The *Gazette des Hôpitaux de Toulouse* defends Koch for his reticence, since he was forced to publish his results prematurely. It says that in showing that the "lymph" has an elective affinity for tubercular tissue, his researches are to be greatly praised. It raises the question as to the desirability of "curing" the phthisical. The *Allg. Wiener med. Zeitung* (Nov. 25th) devotes much space to contributions on the subject, including one by Dr. Buchner, of Munich, who points out that inflammatory action may play the chief part in the destructive process. The *St. Petersburger med. Wochenschr.*, November 17th, states that on November 11th Professor Anrep gave an address on the subject, and inoculated three lupus-cases with some of the "lymph" given him by Professor Koch. Other delegates have also gone to Berlin, and many physicians from all parts of Russia. The remedy has also been used in Professor Baccelli's clinic at Rome.

OFFICIAL LIST OF CHANGES IN THE STATIONS AND DUTIES OF THE MEDICAL CORPS OF THE U. S. NAVY FOR THE WEEK ENDING DECEMBER 13, 1890.

BLOODGOOD, DELAVAU, *Medical Director*.—Ordered to Charleston, S. C., to represent the Medical Corps of the U. S. Navy at the meeting of the American Public Health Association.

AMES, H. E., *Passed Assistant Surgeon*.—Ordered as delegate to Charleston, S. C.

BERTOLETTE, D. N., *Surgeon*.—Detached from the Naval Hospital, Philadelphia, and ordered to special duty in connection with the World's Columbian Exposition.

DICKSON, S. H., *Passed Assistant Surgeon*.—Detached from the "Atlanta," and granted two months' leave of absence.

WENTWORTH, A. R., *Passed Assistant Surgeon*.—Ordered to the U. S. S. "Atlanta."